(17)

No. 01-714-ATX Title: Utah, et al., Appellants
v.
Donald L. Evans, Secretary of Commerce, et al.

Docketed: November 26, 2001 Court: United States District Court for the District of Utah

Entry	Date	Proceedings and Orders
	Nov 20 2001	Statement as to jurisdiction filed. (Response due December 26, 2001)
	Dec 21 2001	Motion of appellees North Carolina, et al. to dismiss or affirm filed.
	Dec 21 2001	Motion of appellee Donald L. Evans, Secretary of Commerce to affirm filed.
	Dec 27 2001	Reply brief of appellants Utah, et al. filed.
	Jan 2 2002	DISTRIBUTED for Conference of January 18, 2002
	Jan 22 2002	Further consideration of the question of jurisdiction is POSTPONED to the hearing of the case on the merits. SET FOR ARGUMENT March 27, 2002.
		**********
	Jan 23 2002	Motion of appellants to set expedited schedule for briefing and oral argument filed.
	Jan 24 2002	Opposition of North Carolina to motion to expedite filed.
	Jan 24 2002	Motion of appellants to set expedited schedule for briefing and oral argument GRANTED. Appellants' brief is to be filed with the Clerk and served upon appellees on or before 3 p.m., Wednesday, February 13, 2002. Appellees briefs are to be filed with the Clerk and served upon appellants on or before 3 p.m., Monday, March 11, 2002. A reply brief, if any, is to be filed with the Clerk and served upon appellees on or before 3 p.m., Wednesday, March 20, 2002. The case is set for oral argument on Wednesday, March 27, 2002, at 10 a.m. Rule 29.2 is suspended in this case.
	Feb 5 2002	Consent to the filing of amicus briefs in support of ei ther party or of neither party received from counsel for the appellants.
	Feb 13 2002	Brief of appellants Utah, et al. filed.
	Feb 13 2002	Brief amicus curiae of Southeastern Legal Foundation, Inc. filed.
	Feb 13 2002	Joint appendix filed.
	Feb 14 2002	CIRCULATED.
	Feb 24 2002	Motion of the Solicitor General and the North Carolina appellees for additional time for oral argument and for divided argument filed.
	Mar 4 2002	Motion of the Solicitor General and the North Carolina appellees for additional time for oral argument and for divided argument GRANTED. and ten additional minutes are allotted for that purpose to be divided as follows: 35 minutes for appellants, 20 minutes for the Solicitor General, and 15 minutes for the North Carolina appellees.
	Mar 11 2002	Brief of appellees Donald L. Evans, Secretary of Commerce,

2 pp

No. 01-714-ATX

Entry	Date	Proceedings and Orders
		et al. filed.
	Mar 11 2002	Brief amicus curiae of Brennan Center for Justice at NYU School of Law filed.
	Mar 11 2002	Brief of appellees-intervenors North Carolina, et al. filed.
	Mar 20 2002	Reply brief of appellants Utah, et al. filed.
	Mar 27 2002	ARGUED.
	Jun 20 2002	Adjudged to be AFFIRMED. Breyer, J., delivered the opinion of the Court, in which Rehnquist, C.J., and Stevens, Souter, and Ginsburg, JJ., joined, and in which O'Connor, J., joined as to Parts I and II. O'Connor, J., filed an opinion concurring in part and dissenting in part. Thomas, J., filed an opinion concurring in part and dissenting in part, in which Kennedy, J., joined. Scalia, J., filed a dissenting opinion.
	Jul 19 2002	JUDGMENT ISSUED.

Supreme Court, U.S.
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No. 01-714

IN THE

Supreme Court of the United States

STATE OF UTAH, *et al.*,

Appellants,

v.

DONALD L. EVANS, *et al.*,

Appellees.

On Appeal from the United States District Court for the District of Utah

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78 pp

QUESTIONS PRESENTED

1. Whether the court below erred in ruling that the Census Bureau may use the statistical method of "hot-deck imputation" to estimate unobserved segments of the population for purposes of congressional apportionment, despite this Court's ruling in *Department of Commerce* v. *United States House of Representatives*, 525 U.S. 316 (1999), that the Census Act prohibits the use of any statistical sampling in the apportionment count.

2. Whether the court below erred in ruling that the Census Bureau may, consistent with the constitutional requirement that congressional representation be apportioned pursuant to an "actual Enumeration" of each State's population, use the statistical method of hot-deck imputation to estimate unobserved segments of the population.

PARTIES TO THE PROCEEDING

The appellants herein, who were plaintiffs before the three-judge district court, are the State of Utah; Michael O. Leavitt, Governor; Olene S. Walker, Lieutenant Governor; Mark L. Shurtleff, Attorney General; L. Alma Mansell, President, Utah Senate; Martin R. Stephens, Speaker, Utah House of Representatives; Mike Dmitrich, Minority Leader, Utah Senate; Ralph Becker, Minority Leader, Utah House of Representatives; U.S. Senators Orrin G. Hatch and Robert F. Bennett; U.S. Representatives James V. Hansen, Christopher B. Cannon, and James Matheson; and Utah residents Blake J. Russon, Michael Wayne Anderson, Brent McGhie, and Jean McGhie.

The appellees in this Court, who were the principal defendants below, are Donald L. Evans, Secretary of the United States Department of Commerce; and William G. Barron, Acting Director of the United States Census Bureau.

Additional appellees, who appeared as defendant-intervenors below, include the State of North Carolina; Michael F. Easley, Governor; Beverly Perdue, Lieutenant Governor; Roy Cooper, Attorney General; Marc Basnight, President Pro Tempore, North Carolina Senate; James Black, Speaker, North Carolina House of Representatives; Patrick Ballentine, Minority Leader, North Carolina Senate; Leo Daughtry, Minority Leader, North Carolina House of Representatives; U.S. Senators Jesse Helms and John Edwards; and U.S. Representatives Eva M. Clayton, Bob Etheridge, Walter B. Jones, David Price, Richard Burr, J. Howard Coble, Mike McIntyre, Robin Hayes, Sue Myrick, T. Cass Ballenger, Charles H. Taylor, and Melvin L. Watt.

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OPINION BELOW

The opinion of the three-judge district court, *Utah* v. *Evans*, No. 2:01-CV-292G (D. Utah Nov. 1, 2001), is unpublished, and is reproduced at App. 1a-34a.

JURISDICTION

The judgment of the three-judge district court was entered on November 5, 2001. This Court has jurisdiction pursuant to 28 U.S.C. §§ 1253, 2101(b), and the Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Act, 1998, Pub. L. No. 105-119, § 209(e)(1), 111 Stat. 2440, 2482.

CONSTITUTIONAL AND STATUTORY PROVISIONS INVOLVED

1. Article I, Section 2, Clause 3 of the United States Constitution is reproduced at App. 37a.

2. Sections 1 and 2 of Amendment XIV of the United States Constitution are reproduced at App. 37a-38a.

3. Sections 141(a) and 195 of Title 13, United States Code, are reproduced at App. 39a.

STATEMENT OF THE CASE

In this lawsuit, the State of Utah, many of its elected officials, and four Utah residents (collectively, "Utah") challenge the unlawful use of a form of statistical sampling in the decennial census. Specifically, in the 2000 census the Secretary of Commerce and the Director of the Census Bureau (collectively "the Bureau") used a statistical sampling technique known as "hot-deck imputation" to estimate unenumerated segments of the population for purposes of congressional apportionment. The Bureau's use of that technique was not only unlawful and unconstitutional; it

indisputably deprived Utah of a fourth seat in the House of Representatives.

In upholding the Bureau's use of hot-deck imputation, the three-judge district court suggested that the term "sampling," as used in the Census Act, 13 U.S.C. § 195, refers only to *random* sampling procedures, *i.e.*, statistical techniques that involve the random "'selection of a subset of units from a larger population in such a way that each unit of the population has a known chance of selection.'" App. 19a (quoting *Orr* v. *Baldridge*, No. IP-81-604-C, slip. op. at 5-7 (D. Ind. July 1, 1985)). The district court also concluded that hot-deck imputation, while concededly a statistical procedure used to "estimat[e] unreachable people," *Department of Commerce* v. *United States House of Representatives*, 525 U.S. 316, 348 (1999) (Scalia, J., concurring), is nevertheless consistent with the Census Clause's requirement that the decennial census consist of an "actual Enumeration" of each State's population.[1]

1. The census is conducted pursuant to Article I, Section 2, Clause 3 of the United States Constitution. As modified by the Fourteenth Amendment, this "Census Clause" requires Congress to conduct an "actual Enumeration" of "the whole number of persons in each State" every ten years, and to use that enumeration as the basis for apportioning seats in the House of Representatives. U.S. Const. art. I, § 2, cl. 3; *id.* amend. XIV, § 2. Through the Census Act, 13 U.S.C. § 1 *et seq.*, Congress has delegated responsibility for conducting the census to the Secretary of Commerce, who is directed to conduct "a decennial census" of the "population" of each

[1] The same parties are currently involved in an appeal from another decision rendered by a separate three-judge panel of the United States District Court for the District of Utah. In that case, the district court rejected Utah's challenge to the Census Bureau's partial enumeration of the overseas population. *See* Jurisdictional Statement, *Utah* v. *Evans*, No. 01-283 (U.S. filed Aug. 14, 2001).

State on "the first day of April of [each census] year." 13 U.S.C. § 141(a). The portion of the decennial census that is used to apportion congressional representation is often referred to as "'the apportionment count.'" Pls.' Statement of Undisputed Facts ("SUF") ¶ 1, *attached to* Pls.' Mem. in Supp. of Summ. J. ("Utah Mem."), *Utah* v. *Evans*, No. 2:01-CV-292G (D. Utah filed June 11, 2001).

2. In preparing to conduct the apportionment count in the 2000 census, the Census Bureau first compiled a "Master Address File"—*i.e.*, a comprehensive list of all known or potential housing units within the United States—with the assistance of the United States Postal Service, other federal agencies, tribal, state, and local governments, and community organizations. See SUF ¶ 5. The Bureau then attempted to contact and count the occupants of every household on the Master Address File. First, the Bureau sent census questionnaires to each unit listed on the Master Address File, and directed the occupants thereof (if any) to complete the questionnaire and mail it back to the Bureau. See *id.* ¶ 7.

The Bureau then conducted various "non-response follow-up" procedures in an attempt to enumerate all housing units listed on the Master Address File whose occupants did not complete a census questionnaire. For example, census enumerators attempted to contact the occupants or neighbors of non-responding housing units (either by telephone or through a personal visit) so that they could complete missing census questionnaires based upon an interview with a member of the household or with a neighbor. Enumerators were instructed to make up to six attempts to contact all housing units whose occupants had not completed a census questionnaire, unless or until such units had been identified as vacant or non-existent. *Id.* ¶ 11; Federal Defs.' Mem. in Opposition to Summ. J. ("DOJ Mem.") at 20, *Utah* v. *Evans*, No. 2:01-CV-292G (D. Utah filed July 11, 2001).

At the conclusion of the non-response follow-up process, non-responding units that the Bureau had neither enumerated

nor declared vacant or non-existent were assigned an "unknown" status. The assignment of an unknown status indicated that census enumerators were unable to determine (1) whether such units actually existed, (2) whether they were occupied or vacant, or (3) the number of persons residing therein.

The Bureau then used a statistical procedure known as "hot-deck imputation" to estimate the occupancy characteristics of all such units—even those whose existence the Bureau had never confirmed. Indeed, the Bureau's *only* basis for concluding that many such units even existed was the Master Address File, which is known to contain a large number of addresses that do not represent housing units, but instead represent businesses, storage units, or even typographical errors. See, *e.g.*, *Oversight of the 2000 Census: Status of Nonresponse Follow-Up and Closeout: Hearing Before the House Subcomm. on the Census of the Comm. on Gov't Reform*, 106th Cong. 57 (2000) (testimony of Census Bureau Director Kenneth Prewitt); DSSD Census 2000 Procedures and Operations Memorandum Series #D-13 from Howard Hogan, Bureau of the Census, to Michael J. Longini, Bureau of the Census 1 (Dec. 21, 2000) (Administrative Record ("AR") C01585, *Utah* v. *Evans*, No. 2:01-CV-292G (D. Utah filed July 11, 2001)). Nevertheless, the Bureau assumed that each estimated unit had the same occupancy characteristics as a nearby "donor" unit. Generally, the "donor" was the estimated unit's geographically closest neighbor that was enumerated during the non-response follow-up procedure. See SUF ¶¶ 13, 31.

3. In compiling the apportionment counts in the 1960, 1970, 1980, and 1990 censuses, the Bureau used imputation to estimate several hundred thousand persons presumed to be living in housing units that the Bureau had found to exist, but for which no population count was reported. *Id.* ¶ 17. The Bureau used the same procedure in the 2000 census. This time, however, it also expanded its use of hot-deck imputation

to estimate the presumed occupants of housing units whose existence it had *not* verified.[2] *Id.* ¶ 18.

The Bureau's use of hot-deck imputation in the 2000 census increased the apportionment count by 0.4%, which was more than enough to affect congressional apportionment. In fact, it is undisputed that if the Bureau had not used imputation—or even if it had used the procedure only with respect to addresses that were known to represent existing housing units—Utah would have been entitled to a fourth seat in the House of Representatives beginning in 2003. *Id.* ¶ 46-47.[3]

The hot-deck imputation procedure at issue here is remarkably similar to the procedure invalidated in *Department of Commerce* v. *United States House of Representatives*, 525 U.S. 316 (1999). In that case, this Court held that the Census Act, 13 U.S.C. § 195, prohibits the use of statistical sampling in the apportionment count. In so doing, the Court invalidated the Bureau's proposed use of a random

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[2] Appellees argued below that the Bureau began using hot-deck imputation to estimate the occupants of housing units not known to exist in 1990. The Bureau's own documents indicate otherwise. *See* SUF ¶ 17 & n.4. But even if the Bureau did use imputation to estimate households of unknown existence in the 1990 census, it did so on a much smaller scale, and its decision to do so did not affect congressional apportionment. *See id.* In the 2000 census, by contrast, the Bureau's estimation of unverified or "phantom" housing units had a distinct impact on apportionment. Indeed, appellees do not dispute that Utah would have been entitled to a fourth seat if the Bureau had adhered to its prior practice of using hot-deck imputation to estimate the "phantom occupants" of housing units known to exist, but not the phantom occupants of phantom housing units. *See* SUF ¶ 47.

[3] The Bureau's use of hot-deck imputation caused what would have been Utah's fourth seat to become North Carolina's thirteenth, but had no other effect on congressional apportionment. Thus, if imputation-derived estimates were removed from the apportionment count, Utah would be entitled to four seats beginning in 2003, North Carolina would be entitled to twelve seats, and no other State would be affected. *See* SUF ¶¶ 46-47.

sampling procedure designed to enable the Bureau to estimate unobserved segments of a particular population by reference to observed segments or "samples" of the same population.

Using the random sampling procedure at issue in *House of Representatives*, the Bureau planned to limit its non-response follow-up efforts to a randomly selected subset or "sample" of all non-responding units in each neighborhood or "census tract." See 525 U.S. at 324. The Bureau would have used information gathered from the "sampled" units in each tract to "estimate the [occupancy] characteristics [of each] of the remaining" non-responding units in the same tract for which it had no information. *Id.* at 324-25. While the Bureau had not yet settled on a precise methodology for creating those estimates when this Court issued its ruling in *House of Representatives*, the Administrative Record compiled by the appellees in this case suggests that the Bureau would have assumed that each non-sampled unit had the same occupancy characteristics as its geographically closest sampled neighbor or "donor." See Robert E. Fay, *Theory and Application of Nearest Neighbor Imputation in Census 2000*, 1999 Proc. for the Sec. on Surv. Res. Methods, Am. Stat. Ass'n 112, 113-14, 116 (AR at C01647-C01656). The Bureau planned to estimate roughly 10% of the population using this technique. See SUF ¶ 27.

4. Utah filed this lawsuit on April 25, 2001, alleging that the Bureau's use of hot-deck imputation deprived Utah of a fourth Representative and was unlawful under the Census Act and the Census Clause. Utah sought declaratory and injunctive relief directing the Bureau to remove all imputation-derived estimates from the apportionment count, and to submit a corrected apportionment tabulation to the President.

Although the Bureau was the principal defendant named in the complaint, it was later joined by the State of North Carolina and several of its officers and representatives, who intervened as defendants soon after the case was filed. Utah

moved for summary judgment on all of its claims on June 11, 2001. Both sets of defendants subsequently moved to dismiss and cross-moved for summary judgment.

Utah presented undisputed evidence demonstrating that it would have been entitled to a fourth Representative following the 2000 census if the Bureau had not adjusted the apportionment count with estimates derived through hot-deck imputation. See SUF ¶¶ 45-47. It advanced two principal arguments in support of its claim that the Bureau's use of hot-deck imputation was unlawful.

First, Utah showed that, like the sampling procedure invalidated by this Court in *Department of Commerce* v. *United States House of Representatives*, 525 U.S. 316 (1999), the Bureau's hot-deck imputation procedure is a statistical tool that enables the Bureau to estimate unobserved segments of a particular population by reference to observed segments or "samples" of the same population. Thus, Utah argued, the Bureau's use of imputation cannot be reconciled with 13 U.S.C. § 195, which prohibits the use of "the statistical method known as 'sampling'" in the apportionment count.

Second, Utah showed that, by using hot-deck imputation, the Bureau failed to comply with its constitutional duty to conduct an "actual Enumeration" of each State's population. Like the procedure at issue in *House of Representatives*, hot-deck imputation is a statistical procedure used to produce *estimates* of difficult-to-enumerate segments of the population, and cannot constitute part of an actual enumeration. Its use in the decennial census therefore violates the Census Clause under the reasoning of the four-Justice concurrence in *House of Representatives*, 525 U.S. at 348 (1999) (Scalia, J., concurring).

5. The three-judge district court heard oral argument on all dispositive motions on August 29, 2001. In a memorandum opinion dated November 1, 2001, the court (Murphy, J., joined by Kimball, J.) issued a divided opinion granting

summary judgment for the defendants and dismissing each claim raised by Utah.

As to Utah's statutory claim, the district court reasoned that "statistical sampling and imputation are separate statistical methodologies" and that they "were viewed as such at the time of the enactment of § 195." App. 18a. In reaching that conclusion, the district court relied almost entirely on the reasoning employed in *Orr* v. *Baldridge*, No. IP-81-604-C, slip op. at 5-7 (S.D. Ind. July 1, 1985). The court all but ignored the fact that the parties to that litigation had stipulated to the validity of the procedure under § 195, and therefore had neither briefed nor argued that issue. App. 18a-20a.

The district court defined the term "sampling," as used in § 195, as "the technique of determining the traits of the entire population by collecting and analyzing data" from a *randomly* drawn, representative sample of that population. App. 20a. In other words, the district court defined the word "sample" as a "'subset of units from a larger population'" selected in such a way "'each unit of th[at] population has a known chance of selection.'" *Id.* at 19a (quoting *Orr*). The court further reasoned, without citing any authority, that "sampling is a statistical methodology utilized at the data collection stage" of statistical sampling, "while imputation is a distinct statistical methodology utilized at the data processing stage." *Id.* at 21a. Thus, the district court concluded that the Bureau's use of hot-deck imputation in the 2000 census did not implicate § 195's prohibition against the use of sampling. *Id.*

The district court also rejected Utah's claims under the Census Clause. It reasoned that some "imputation must take place by practical necessity, whether it is the imputation of statistically plausible values for the missing data or the imputation of zero." App. 25a. The court further reasoned that the "latter approach appears clearly inconsistent with the constitutional imperative of an actual enumeration." *Id.* Dismissing Utah's constitutional claim as an "effort to ascribe some exalted meaning to 'actual enumeration,'" *id.*, the

district court concluded that the "constitutional requirement of an enumerative census was simply to distinguish that process from the conjectural apportionment of the first Congress." *Id.* at 26a.

The district court acknowledged that "Justice Scalia and the three justices joining his separate opinion in *House of Representatives* seemed to opine that the use of 'estimation techniques' in conducting the decennial census would violate the Census Clause." App. 26a. The court nevertheless concluded that, in its view, "the Constitution does not prohibit the use of narrowly tailored statistical methodologies, such as hot-deck imputation, for the purpose of improving the accuracy of the decennial census and furthering 'the constitutional goal of equal representation.'" *Id.* at 26a-27a (quoting *Franklin* v. *Massachusetts*, 505 U.S. 788, 804 (1992)).

Judge Greene dissented. He concluded that the Bureau's use of hot-deck imputation, in both substance and effect, constitutes sampling under § 195, as interpreted by this Court in *House of Representatives*. See App. 28a-34a. He noted that the Bureau has previously defined sampling as occurring "'whenever the information on a portion of the population is used to infer information on the population as a whole.'" *Id.* at 30a. Judge Greene found imputation to be "indistinguishable" from the type of sampling at issue in *House of Representatives* "because both use a portion of the population to infer information concerning segments of the population in order to arrive at final figures concerning the population as a whole." *Id.* at 33a. Accordingly, he concluded that the Bureau's use of hot-deck imputation violates § 195 of the Census Act. *Id.* And he therefore found it unnecessary to reach the constitutional question. *Id.* at 28a.

Utah filed a timely notice of appeal on November 5, 2001. App. 35a-36a.

THE QUESTIONS PRESENTED ARE SUBSTANTIAL

This Court has consistently granted plenary review of decisions of three-judge courts involving the legality of the methodologies employed by the Census Bureau in conducting the apportionment count. See, *e.g.*, *Department of Commerce* v. *United States House of Representatives*, 525 U.S. 316, 328 (1999); *United States Dep't of Commerce* v. *Montana*, 503 U.S. 442, 445 (1992); *Franklin* v. *Massachusetts*, 505 U.S. 788, 791 (1992). The questions presented here are of similar legal and practical significance, and surely are sufficiently substantial to warrant this Court's plenary consideration.

As a practical matter, the Bureau's policy and the decision below mean that Utah's representation in the House of Representatives has been improperly reduced by 25%, and its representation in the Electoral College diluted by roughly 17%. Thus, if the decision below stands, Utah and its approximately 2 million residents will be seriously under-represented in both of these bodies for the next decade.

The district court's decision upholding this result resolves significant legal issues left open by this Court's earlier decision in *House of Representatives*. Those issues warrant plenary consideration by this Court.

As a result of that decision, for example, and as explained in Section I below, the Bureau is now authorized to supplement the apportionment count with estimates obtained through statistical procedures, including procedures that draw inferences from observed segments or "samples" of a particular population to unobserved segments of the same population. That result cannot be reconciled with this Court's clear holding in *House of Representatives* that the Census Act bars the use of statistical sampling techniques in the apportionment of Representatives.

As discussed in Section II, another troubling feature of the decision below is its loose construction of the Census Clause's mandate that congressional representation be

apportioned among the States pursuant to an "actual enumeration" of the population. App. 25a-26a. Under the lower court's decision, the Bureau is free to supplement, or even substitute, the person-by-person count contemplated by the Constitution with mere estimates. The use of such estimates in the apportionment count is offensive to the plain language of the Census Clause, and leaves the census vulnerable to the "possibility of partisan manipulation." *House of Representatives*, 525 U.S. at 348-49 (Scalia, J., concurring).

I. THIS CASE PRESENTS SUBSTANTIAL QUESTIONS REGARDING THE PROPER APPLICATION OF THE CENSUS ACT'S BAN ON "STATISTICAL SAMPLING" IN THE WAKE OF THE *HOUSE OF REPRESENTATIVES* DECISION.

In concluding that the Bureau's use of hot-deck imputation does not run afoul of the Census Act as construed in *House of Representatives*, the district court tersely concluded that "statistical sampling and imputation are separate statistical methodologies" and that they "were viewed as such at the time of the enactment of § 195." App. 18a. As shown below, however, and as Judge Greene recognized in his dissent, the two procedures are indistinguishable under the plain language of that provision and under this Court's analysis of that language. Moreover, none of the three supposed distinctions advanced by the Bureau and accepted by the majority holds any water. Thus, the majority's approach—and the Bureau's own actions—can only be viewed as an attempt to circumvent this Court's decision in *House of Representatives*.

1. As Judge Greene pointed out, hot-deck imputation and the method of random sampling struck down by this Court in *House of Representatives* are substantively indistinguishable. See App. 29a-33a. Using the random sampling plan invalidated in *House of Representatives*, the Bureau would have limited its non-response follow-up efforts to a randomly selected subset or "sample" of all housing units in each

"census tract" whose occupants had not completed a census questionnaire. See 525 U.S. at 324. After visiting and enumerating each unit selected for inclusion in the non-response follow-up process, the Bureau would have used information gathered from the "sampled" units in each tract to "estimate the [occupancy] characteristics [of each] of the remaining non-responding units in the same tract for which it had no information. *Id.* at 324-25.

Indeed, although the Bureau had not yet settled on a precise methodology for deriving those estimates at the time this Court issued its ruling in *House of Representatives*, the Bureau's own documents indicate that it intended to use the same "nearest-neighbor" approach utilized in the hot-deck imputation method at issue here. Thus, the Bureau would have assumed that each non-sampled unit had the same occupancy characteristics as its geographically closest sampled neighbor or "donor." See Fay, *supra* at 113-14, 116 (AR at C01647-C01656). The Bureau planned to use this random sampling technique to estimate roughly 10% of the population. SUF ¶ 27.

Similarly, the Bureau here used hot-deck imputation to estimate the occupancy characteristics of housing units whose occupants failed to complete a census questionnaire and were not enumerated during the non-response follow-up process. Specifically, the Bureau assumed that each estimated unit had the same occupancy characteristics as a "donor" household, which was generally the nearest household whose occupants had been enumerated during the non-response follow-up process.

The donor housing units used in hot-deck imputation—which supplied 0.4% of the population data included in the apportionment count—were sampled in a "non-random" manner in that they were not selected "'from a larger population in such a way that each unit of the population ha[d] a known chance of selection.'" App. 19a (quoting *Orr*). Instead, those units were selected solely by virtue of (a) the

fact that—for whatever reason—census enumerators were able to enumerate their occupants during the non-response follow-up process, and (b) their relative proximity to units whose occupants the Bureau failed to enumerate, even after as many as six attempts.

Thus, the Bureau's hot-deck imputation procedure differed from the sampling proposal struck down in *House of Representatives* only in that the former (1) produced estimates on a smaller scale and (2) selected "donor" or sampled units in a non-random fashion. Neither of these distinctions, however, supports the district court's conclusion that hot-deck imputation is not a form of "sampling" under § 195.

2. The first distinction is legally insignificant, especially in light of this Court's decision in *House of Representatives*. There, the Court expressly held that the extent of the Bureau's reliance on statistical sampling has no bearing on its statutory viability under § 195. See 525 U.S. at 342 (holding that "[w]hether used as a 'supplement' or as a 'substitute,'" sampling cannot be used in determining the apportionment count). Thus, the district court's apparent reliance upon the fact that the sampling method at issue here is, in its view, more "narrowly tailored" than the method at issue in *House of Representatives*, App. 26a, was plainly misplaced.

Moreover, such a distinction would give the Bureau the ability to evade the principles laid down in that decision. If, for example, the Bureau can get away with using statistical sampling to estimate 0.4% of the population here, there is no principled reason why the Bureau could not use sampling to estimate increasingly larger percentages of the population in future censuses. Moreover, the district court's conclusion inevitably will give rise to difficult line-drawing problems and spawn extensive litigation over whether future uses of imputation are "narrowly tailored" enough to satisfy the Census Act. This Court should grant plenary review both to prevent these problems and to reiterate what it held in *House*

of Representatives, namely, that § 195 prohibits all sampling, regardless of the precise extent of its use by the Bureau.

3. The next distinction offered by the district court—*i.e.*, that the sampled units were selected in a non-random fashion—is likewise irrelevant under the plain language of § 195. Indeed, that distinction amounts to a holding that § 195 prohibits only "random" sampling, but not "non-random" sampling. That is not the law.

First, the relevant statutory language is utterly void of any suggestion that the term "sampling," as used in § 195, refers only to "random sampling." The Census Act prohibits the Bureau—without qualification, and in no uncertain terms—from using "the statistical method known as 'sampling'" in conducting the apportionment count. 13 U.S.C. § 195.

Moreover, the Bureau's own documents explain that "'sampling' occurs" not only in the context of random sampling, but "*whenever* the information on a portion of a population is used to infer information on the population as a whole." See Bureau of the Census, *Report to Congress—The Plan for Census 2000*, at 23 (Aug. 1997) ("*2000 Census Report*") (AR at C00155) (emphasis added); see also *id.* (describing the Bureau's hot-deck imputation procedure directly under a subheading entitled "Reliance on Sampling in Previous Censuses"). Thus, the term "sampling" refers to the two-step process of (1) collecting data from an observed segment or "sample" of a particular population, and (2) processing that data to make assumptions about unobserved segments of the same population. See SUF ¶¶ 24-25. Section 195 contains no language suggesting that Congress intended to enact a more limited prohibition than the above definitions would indicate. If Congress had intended to limit the Census Act's prohibition on sampling to "random" methods, surely it would have so qualified the statutory term.

Accordingly, the district court's construction of the Act squarely contradicts the familiar rule that, when Congress

uses a particular term of art, but does not narrow its operative meaning by inserting a limiting clause or term, courts are without authority to amend the statute by inserting the limiting language themselves. See, *e.g.*, *EEOC* v. *Arabian Amer. Oil Co.*, 499 U.S. 244, 255 (1991) (rejecting an argument that the term "employer," as used in Title VII, "means only, 'American employer'"). Under that principle, § 195 cannot be construed to prohibit the use of random sampling, but not other forms of sampling.

Second, the district court's construction of the statute would authorize the Bureau to circumvent this Court's ruling in *House of Representatives* by making insignificant adjustments to the procedure invalidated in that case. Specifically, if hot-deck imputation were upheld on the ground that § 195 prohibits only random sampling, the Bureau could easily modify the proposal at issue in that case to enumerate only 90% of the population while using non-random statistical methods to estimate the remainder. By devoting fewer resources to the non-response follow-up process (*e.g.*, making only one follow-up visit instead of the six visits it made in the 2000 census), the Bureau could predictably expand its use of hot-deck imputation to estimate increasingly larger portions of the population in the decennial census—up to and even exceeding the 10% it planned to estimate using the procedure invalidated in *House of Representatives*. See SUF ¶¶ 39-43; DOJ Mem. at 20. Under the district court's analysis, this approach (which would be substantively indistinguishable from the method struck down by this Court) would survive under the statute simply because the donor households would be selected in a non-random fashion.

The Census Act cannot be read to permit such an absurd result. Congress could not have intended to permit estimation of the apportionment count by non-random sampling but not

by random sampling, particularly where non-random sampling is, if anything, a *less* reliable method of estimation.[4]

Third, the district court's conclusion that § 195 prohibits only random sampling is inimical to the statute's underlying purpose, *i.e.*, protecting the decennial census from the risk of manipulation. See *FEC* v. *Democratic Senatorial Campaign Comm.*, 454 U.S. 27, 32 (1981) (courts "must reject administrative constructions of [a] statute . . . that are inconsistent with the statutory mandate or that frustrate the policy that Congress sought to implement"). As Utah demonstrated below, the use of hot-deck imputation provides the Bureau with extensive opportunities to manipulate the census and its resulting apportionment. See SUF ¶¶ 39-43.

For example, the unrefuted evidence shows that, if non-random sampling is generally allowed, the Bureau could easily alter the impact and extent of hot-deck imputation by substituting a different statistical algorithm for the "nearest neighbor" method currently employed, by reducing the resources it dedicates to the non-response follow-up process, or by changing the procedures for adding or removing addresses from the Master Address File. See *id.* Congress could not have intended to leave open such extensive opportunities for manipulation. This Court should grant plenary review to make this clear, and to prevent the Bureau and the lower courts from improperly limiting the statutory

[4] Both forms of sampling rely on the assumption that non-responding housing units are "similar" to neighboring donor units used to estimate their occupancy characteristics. That assumption was arguably defensible under the Bureau's random sampling procedure because the donor units were distributed randomly among all non-respondents. The donor units used in hot-deck imputation, by contrast, are demonstrably different from the estimated units in that the Bureau was able to enumerate the former, but not the latter, during the non-response follow-up process. Thus, hot-deck imputation is less reliable than random sampling in that a randomly sampled unit is likely representative of an unobserved, estimated unit, but a non-randomly sampled unit is not. *See* SUF ¶¶ 33-35.

prohibition upheld in *House of Representatives* to random sampling.

4. Finally, the district court, at the Bureau's urging, suggested that the term "sampling" in § 195 refers only to activities carried out during "the data collection stage" of sampling, not those carried out at the "data processing stage." App. 19a, 21a. That supposed distinction relies on a mere linguistic coincidence, however, and finds no basis in the text of the statute or in *House of Representatives*.

As explained above, the term "statistical sampling" refers to a two-step process that "'occurs whenever [1] the information on a portion of a population is [2] used to infer information' about unobserved portions of the same population." SUF ¶ 24 (quoting *2000 Census Report* at 23 (AR at C00155)). In the first step, which is sometimes described as "sampling," statisticians collect data by observing a component or "sample" of the population. See SUF ¶ 25; see also Pls.' Reply Mem. in Supp. of Summ. J. at 32, *Utah* v. *Evans*, No. 2:01-CV-292G (D. Utah filed July 25, 2001) ("Utah Reply"). In the second step, referred to as "estimation" or sometimes "imputation," statisticians use data gathered from the sample to draw conclusions about unobserved components of the population. See SUF ¶ 25; Utah Reply at 32.

Relying on the semantic coincidence that the first step of data collection is sometimes referred to as "sampling," and the second step is occasionally described as "imputation," the district court hastily concluded that the two concepts are entirely separate and "operate at completely different levels and entirely independent of each other." App. 21a. But that analysis is logically untenable. Although "imputation" as a statistical term of art may refer to the "data processing stage" of the process of deriving a statistical estimate, the term "imputation" as used by the Bureau here clearly refers to the "hot-deck" method of collecting the data on "donor" units that will then be used to estimate the occupancy

characteristics of unenumerated housing units. Thus, the district court's analysis on this point relies on a linguistic trick—one that incorrectly attempts to characterize "imputation" as involving only data processing and not data collection.

In fact, both data collection and data processing are necessarily present in both the hot-deck method employed in the 2000 census and in the random sampling proposal invalidated in *House of Representatives*. Under the latter procedure, the Bureau planned to (1) *collect* data from a sample or "donor," and (2) *process* that data in order to make a conclusion (based on data drawn from the relevant donor) about the occupancy and/or existence of a nearby non-responding household in the same tract that was not selected for inclusion in the non-response follow-up process. See 525 U.S. at 324.

The hot-deck procedure used in the 2000 census involves the same two steps. See SUF ¶¶ 24-26. Using hot-deck imputation, the Bureau (1) collected data from an individual donor household, and (2) processed that data in order to make a conclusion, based on data obtained from that donor, about the occupancy and/or existence of a nearby non-respondent that was not counted during the non-response follow-up process. As explained previously, the only qualitative difference between the two procedures is that they rely on different mechanisms for selecting donor households.

Accordingly, the district court's assumption that the "sampling" prohibited by § 195 is limited to methods of "data collection" is nonsensical, and in any event implicates equally the hot-deck method employed in the 2000 census. Indeed, it is impossible to imagine a method of "sampling" relevant to an assessment of the population that would not involve both steps.

The district court's reliance on this illusory linguistic distinction would thus effectively nullify both § 195 and this

Court's decision in *House of Representatives*. The decision below therefore warrants full review by this Court.

II. THIS CASE PRESENTS SUBSTANTIAL QUESTIONS REGARDING THE APPLICATION OF THE CENSUS CLAUSE'S REQUIREMENT OF AN "ACTUAL ENUMERATION."

The decision below warrants plenary review by this Court for the additional reason that it fails adequately to address critical constitutional questions implicated by the Bureau's use of hot-deck imputation. As four members of this Court observed in *House of Representatives*, the Census Clause's requirement that congressional apportionment be based on an "actual Enumeration" may be read to prohibit the use of sampling, or any other method of estimation, in the decennial census. See 525 U.S. at 346-47 (Scalia, J., concurring, joined by Rehnquist, C.J., Kennedy, J., and Thomas, J.) (concluding that there are grave constitutional doubts as to whether the Bureau's use of sampling is consistent with the constitutional requirement of an "actual Enumeration."). The Framers eschewed estimation techniques in favor of the requirement of an "actual enumeration" to avoid giving "the party controlling Congress the power to distort representation in its own favor" by selecting "among various estimation techniques having credible (or even incredible) 'expert' support." *Id.* at 348 (Scalia, J., concurring). Actual enumeration, in other words, "may not be the most accurate way of determining population, but it may be the most accurate way of determining population with minimal possibility of partisan manipulation." *Id.* at 348-49 (Scalia, J., concurring).

In sustaining the Bureau's use of hot-deck imputation, the district court disregarded the plain language of the Census Clause, incorrectly assumed that that language could be ignored because of the manner in which it was added to the Constitution, adopted a logically flawed standard that would spawn endless litigation, and disregarded a wealth of historical evidence. Accordingly, the district court's analysis

under the Census Clause cannot withstand review and warrants full review by this Court.

1. First, the district court made no effort to reconcile the Bureau's use of hot-deck imputation with the applicable constitutional language. Nor could it have done so. There simply is no plausible understanding of the term "actual Enumeration" that would permit the apportionment of Representatives to be calculated by reference to estimates derived through the use of statistical procedures.

As Justice Scalia pointed out in his concurring opinion in *House of Representatives*, dictionaries contemporaneous with the ratification of the Constitution reveal that "an 'enumeration' requires an actual counting, and not just an estimation of number." *Id.* at 346-47 (Scalia, J., concurring). That definition suggests that the Census Clause prohibits the use of any procedure that, like hot-deck imputation, does not involve an individualized reckoning of the population—one in which each person is identified on the basis of information provided by someone with actual knowledge of that person's existence.

The district court's conclusion to the contrary ignores the plain language of the Census Clause. Significantly, neither the district court nor the appellees have ever offered *any* interpretation of the term "actual Enumeration" that would sanction the use of statistical methods for estimating unobserved segments of the population.

In fact, the Bureau itself has recognized that "[t]he term 'actual Enumeration'" refers specifically to "a census or a headcount," and—as used in the Census Clause—prohibits the use of estimates in the apportionment count. Census Undercount Adjustment: Basis for Decision, 45 Fed. Reg. 69,366, 69,371 (Oct. 20, 1980) (AR at C01212-C01222).[5]

[5] According to the Bureau's earlier statements, a "'census' is an official enumeration of the inhabitants with details of sex, age, family, etc., and the public record thereof; it is not merely a sum total, *but an official list containing the names of all the inhabitants* . . . . A 'census' is not an estimate of the population." *Union Elec. Co.* v. *Cuivre River Elec. Coop., Inc.*, 571 S.W.2d 790, 794 (Mo. Ct. App. 1978) (emphasis added and citations omitted), *quoted* by the Bureau in Census Undercount Adjustment, 45 Fed. Reg. at 69,371 (AR at C01218). Accordingly, the Bureau publicly responded to suggestions that it use statistical methods in the apportionment count by pointing out that "the framers of the Constitution drew a clear distinction between an 'actual Enumeration' and an estimate, regardless of its underlying methods." Census Undercount Adjustment, 45 Fed. Reg. at 69,372 (AR at C01219). The Bureau therefore firmly rejected "estimates based on *sampling or other statistical procedures, no matter how sophisticated.*" *Id.* (emphasis added).

The Bureau later departed from this view when it decided for the first time to use the random sampling methodology that was struck down in *House of Representatives*. Even then, however, the Bureau told the three-judge district court in that case that "*no constitutional* difference exists between sampling and the [hot-deck] imputation methodology." Defs.' Mem. in Opp. to the House's Mot. for Summ. J., at 27 n.20 *United States House of Representatives* v. *United States Department of Commerce*, No. 98-456 (D.D.C. filed May 4, 1998) (emphasis in original). The district court failed even to acknowledge the Bureau's prior construction of the Census Clause, much less articulate any textual basis for its rejection of that construction, or for its rejection of the construction adopted by four members of this Court in *House of Representatives*.

2. Instead, the district court reasoned that the term "actual Enumeration" can be disregarded because it was "added [to the Constitution] by the Committee of Style and Arrangement, a committee which," according to the district court, "did not operate to alter the substance of any of the resolutions passed by the Constitutional Convention." App. 26a. But the district court's analysis on this point has been soundly rejected by this Court. In *Nixon* v. *United States*, 506 U.S. 224 (1993), the petitioner argued that a particular term in

the Impeachments Trial Clause lacked substantive meaning because it was a "'cosmetic edit' added by the Committee of Style after the delegates had approved the substance of the . . . Clause." *Id.* at 231. This Court rejected this argument for two reasons.

First, the Court explained that, because "the Committee of Style had no authority from the Convention to alter the meaning of" the Constitution, the Court "must presume that the Committee's reorganization or rephrasing accurately captured what the Framers meant in their unadorned language," and in short, "must presume that the Committee did its job." *Id.* (citing 2 *Records of the Federal Convention of 1787*, at 553 (M. Farrand ed., 1966), and *Powell* v. *McCormack*, 395 U.S. 486, 538-39 (1969)). As the Court went on to explain, "[t]his presumption is buttressed by the fact that the Constitutional Convention voted on, and accepted, the Committee of Style's linguistic version," and that language added by the Committee of Style is therefore "entitled to no less weight than any other word of the text, because the Committee revision perfected what had been agreed to." *Id.* (citing 2 Farrand, *supra*, at 663-667) (internal quotations omitted).

Second, the Court noted that carrying this "argument to its logical conclusion would constrain us to say that the second to last draft would govern in every instance where the Committee of Style added an arguably substantive word." *Id.* at 231-32 (emphasis omitted). "Such a result," the Court continued, would be "at odds with the fact that the Convention passed the Committee's version, and with the well-established rule that the plain language of the enacted text is the best indicator of intent." *Id.* at 232. The district court's analysis on this point was therefore erroneous, and warrants plenary review.

3. Similarly indefensible was the district court's casual suggestion that the term "actual Enumeration" represents nothing more than a desire on the part of the Framers to

proscribe the type of "conjectural apportionment" which—like the formula used to determine the composition of the first Congress—is "based on the grossest of estimates." App. 26a. Thus, according to the district court, as long as a particular statistical procedure is "narrowly tailored," and can be shown to "improve the accuracy of the census count," *id.*, the Bureau's decision to use that procedure passes constitutional muster.

The district court did not articulate any historical or textual basis for this sweeping proposition. Instead, it merely concluded that, because "some type of imputation must take place by practical necessity, whether it is the imputation of statistically plausible values . . . or the imputation of zero," the Census Clause must be read to allow the Bureau to use any procedure that may—in the Bureau's own judgment—improve the accuracy of the apportionment count. See App. 25a. For at least two reasons, that analysis cannot withstand review and merits plenary consideration by this Court.

First, the district court's analysis on this point rests on the premise that a failure to count a person who cannot be identified through an actual enumeration is legally and logically tantamount to a refusal to count that person. That premise is both illogical and contrary to the constitutional text. By requiring an "actual Enumeration," the Census Clause necessarily assumes that all persons who cannot be "enumerated" will be *excluded* from the apportionment count. Exclusion of those persons therefore does not imply that they are "imputed" out of existence. It simply means that, for whatever reason, they could not be "enumerated" and therefore could not be included in the apportionment count. *Inclusion* of those same persons, on the other hand, would run afoul of the express constitutional command explained above, and cannot be deemed to be equivalent to excluding people who cannot be identified.

Second, if affirmed by this Court, the district court's opinion would inevitably embroil the courts in an endless

series of inquiries into which estimation procedures are sufficiently accurate to pass constitutional muster, and which are likely to result in the type of "conjectural apportionment" described as unacceptable by the district court. App. 26a. This Court should note probable jurisdiction to resolve the uncertainty created by the district court's opinion, and thereby forestall the chaos that may result from that opinion. See *House of Representatives*, 525 U.S. at 349 (Scalia, J. concurring) ("The prospect of this Court's reviewing estimation techniques in the future, to determine which of them so obviously creates a distortion that it cannot be allowed, is not a happy one.") (emphasis omitted).

4. Finally, unrefuted historical evidence further undermines the district court's conclusion that the Census Clause prohibits only the kind of "conjectural apportionment" that results from a census "based on the grossest of estimates," and authorizes the Bureau to use any statistical procedure it deems necessary to improve the accuracy of the census. See Utah Mem. at 37-41; Utah Reply at 55-67. That evidence, which the district court declined even to address, authoritatively demonstrates two things. First, it shows that the Framers knew the difference between population counts derived from estimates and those based on a person-by-person count using first-hand data. Second, the historical evidence also demonstrates that, despite the known availability of various estimating procedures, the Framers rejected the idea of apportioning congressional representation based on any form of estimate. Accordingly, that evidence shows that the phrase "actual Enumeration" was understood (in the language of the Framers' day) to prescribe an individualized, person-by-person count of the population based on data from those with first-hand knowledge of the matters reported—notwithstanding their understanding that such an approach will inevitably result in what the district court cleverly described as "the imputation of zero." App. 25a.

a. In its submissions to the district court, Utah demonstrated that early population assessments of the American colonies can be divided into two categories: those based on an actual "enumeration" and those based on mere "estimates." See Utah Mem. at 38; Utah Reply at 56-63. And it was this distinction, not the district court's distinction between "gross[] [statistical] estimates" and more "narrowly tailored statistical methodologies," App. 26a, that was the focus of debate during the founding era.

For example, in colonial times, the populations of the various colonies were estimated and enumerated primarily as a result of inquiries from the British Board of Trade, which wished to assess the strength of the colonies for taxation and military purposes. In light of the cost and difficulty of conducting an actual enumeration, "[c]olonial governors looking for data . . . often had to resort to estimates in order to satisfy the Board of Trade." James H. Cassedy, *Demography in Early America: Beginnings of the Statistical Mind, 1600-1800*, at 72 (1969).

Contemporaneous accounts of the colonial reports to the Board of Trade drew a clear distinction between such "estimates" and a census based on an "enumeration." In his 1792 History of New Hampshire, for example, Jeremy Belknap noted the estimates and enumerations in that colony in the 1770s:

> Governor Wentworth was ordered by the British ministry to take an exact survey; but 'having no fund to pay the expense' . . . he was subjected to the inconvenience of . . . disappointment. The number of people however, in 1767, was *estimated* at 52,700. Another *estimate* was made in 1774, of which I have . . . no official account; but have been informed that it was 85,000. This was too high. The estimate given to Congress . . . at the commencement of the revolution, was still more extravagant. A survey taken in 1775, *partly by enumeration* and *partly by estimation*, for the

purpose of establishing an adequate representation of the people, made the whole number 82,200.

3 Jeremy Belknap, *The History of New-Hampshire* 233-34 (1792) (emphasis added).

This and a wealth of other evidence presented below demonstrates that Americans in the colonial era understood the difference between an individualized "enumeration" of the population and a mere "estimate." They recognized that an enumeration was expensive and inconvenient, and that an estimate could avoid such difficulties. Finally, in contravention of the district court's theory that the Framers had in mind only "gross statistical estimates" and not the use of more "narrowly tailored statistical methodologies," App. 26a, the evidence shows that Americans in the founding era understood the possibility of an assessment of population "partly by enumeration" and "partly by estimation."

The same distinction was recognized across the Atlantic in 18th-century Britain in debates that were widely followed in colonial America. Because Britain did not conduct its first census until 1801, there was ample room for debate about the size of the population and whether it was increasing or decreasing. Prior to the adoption of the U.S. Constitution, William Brakenridge, Richard Price, and Richard Forster each offered estimates of Britain's population suggesting that it was declining. These researchers based their estimates on partial enumerations and other methodologies that presaged modern sampling techniques, and they published their work to the scholarly community of the day.[6]

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[6] *See, e.g.*, William Brakenridge, *A Letter from the Reverend William Brakenridge, D.D. and F.R.S. to George Lewis Scot, Esq.; F.R.S., concerning the Number of Inhabitants within the London Bills of Mortality*, 48 Phil. Transactions II, at 788, 796 (1755); Richard Forster, *An Extract of the Register of the Parish of Great Shefford, near Lamborne, in Berkshire, for Ten Years: With Observations on the Same: In a Letter to Tho. Birch, D.D. Secret. R.S. from the Rev. Mr. Richard Forster, Rector of Great Shefford*, 50 Phil. Transactions I, at 356, 359 (1757); Richard Price, *An Essay on the Population of England, From the Revolution to the present Time* (2d ed. 1780). All of these materials are reprinted in *The Population Controversy* (D.V. Glass ed., 1973).

Critics of these assessments consistently drew a stark distinction between an "actual enumeration" of population and a mere "estimate." Arthur Young, for example, complained that Price's assessment of "the number of houses" was "not from an *actual enumeration*, (for none was ever yet made) but *calculated* from the [rolls of the] hearth tax." Arthur Young, *Reply to Dr. Price. To the Printer of the St. James Chronicle* 322, 324 (Mar. 28, 1772) (first emphasis added).[7]

All of this historical evidence confirms the conclusion of the *House of Representatives* concurrence, namely, that the generation of the Framers understood the difference between an "actual enumeration" and a mere "estimate." That evidence shows that the very phrase at the center of the

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[7] Toward the close of the 18th century (and near the time of the American Constitutional Convention), British decision makers began to accept the idea of actually enumerating the population. *See* Glass, *Numbering the People: The Eighteenth-Century population controversy and the development of census and vital statistics in Britain* 90-105 (1973) ("*Numbering the People*"). In 1800 a "Population Bill" was introduced in Parliament, calling for a full enumeration of the British population. *Id.* at 90; An Act for Taking an Account of the Population of Great Britain, and of the Increase in Diminution Thereof, 1800, 41 Geo. 3 c. 15 (Gr. Brit.). Both the parliamentary history and the text of the 1800 Act carry forward the established usage of the term "enumeration." In a speech in the House of Commons, Charles Abbot complained of the inadequacy of the existing "inquiries and estimates" of population, which—although they had been compiled by the experts of the day—rested on partial "numerations of the people," or "imperfect data." 35 *The Parliamentary History of England, from the Earliest Period to the Year 1803*, at 599, 600 (1819). To "substitute certainty for conjecture," *id.* at 600, the bill called for a complete enumeration of the "total Number of Persons within the Kingdom of Great Britain." 41 Geo. III c. 15, § 1. *See Numbering the People* at 91.

constitutional debate—"actual Enumeration"—was a term of art used to draw the very distinction at issue here. The district court was therefore wrong to suggest that the Census Clause does no more than proscribe the type of "conjectural apportionment" that would result from the use of "the grossest of estimates." App. 26a.

b. Historical evidence presented below also demonstrates that the district court was wrong to suggest that the Bureau's use of "narrowly tailored" statistical estimates can be justified under the Census Clause to the extent that they "improve the accuracy of the census." App. 26a. Indeed, that assertion flies in the face of historical evidence indicating that the Framers rejected the idea of apportioning representation on the basis of any kind of estimate, even though they realized that an "actual Enumeration" would inevitably result in an undercount of the actual population.

For example, in their correspondence discussing the returns from the first census, George Washington and Thomas Jefferson lamented the fact that the returns from the "enumeration" had fallen short of their "estimates" of the population and failed to reflect the true population. In a letter to William Short, for example, Jefferson wrote:

> I enclose you also a copy of our census, written in black ink, so far as we have *actual* returns, and supplied by *conjecture* in red ink, where we have no returns; but the conjectures are known to be very near the truth. Making very small allowance for omissions . . . we are certainly above four millions.

8 *The Writings of Thomas Jefferson* 236 (Andrew A. Lipscomb ed., 1903) (emphasis added). Washington expressed a similar sentiment in a letter to Gouverneur Morris dated July 28, 1791. After lamenting that the "enumeration" of the population would fall short of the "estimate" he had previously offered of the population of the United States, Washington said:

> Returns of the Census have already been made from several of the States and a tolerably just estimate has been formed now in others, by which it appears that we shall hardly reach four millions; but one thing is certain our *real* numbers will exceed, greatly, the official returns of them.

31 *The Writings of George Washington* 329 (John C. Fitzpatrick ed., 1931) (emphasis added). This correspondence confirms that Washington and Jefferson understood not only the distinction between an enumeration and an estimate, but also that the Constitution and the first Census Act had chosen the former over the latter.

Moreover, despite their self-proclaimed ability to provide estimates where actual enumerations were lacking, Washington and Jefferson accepted the fact that the actual enumeration had failed to provide a full account of the population and were resigned to the impropriety of supplementing the official returns by methods of estimation. Washington, for example, was as convinced as he was disappointed that the new nation's "*real* numbers [would] exceed, greatly, the official returns of them." *Id.* But although he had a practical capacity and an obvious incentive to augment the official returns with supplemental estimates (in order to better "influence" Europe to "form a more just opinion of our present and growing importance"), Washington acknowledged that he was bound by the "authenticated number" produced by the official returns of the enumeration. *Id.* Similarly, Jefferson acknowledged that the "omissions" in the enumeration had "been very great," so much so that the true population was "certainly above four millions, probably about four millions one hundred thousand." 8 Jefferson, *supra*, at 236. And while Jefferson acknowledged a practical capacity to make an "allowance" for the "omissions" in order to arrive at a more accurate measure of the population, like Washington he understood that the Constitution called for census "returns" based on an

actual enumeration, not mere "conjecture." *Id.* Thus, there can be no doubt that the Framers knew that an "actual Enumeration" would likely be less "accurate" than an enumeration supplemented by statistical estimation, but nevertheless decided to require an "actual Enumeration" of each State's population.

The same evidence demonstrates, moreover, that the Framers' decision to require an "actual enumeration" rather than an "estimate" was based, not on any misconception about the accuracy of the former over the latter, but on political considerations. As Justice Scalia noted in *House of Representatives*, the Framers wanted to minimize the risk of "partisan manipulation" by the federal government, and they recognized that an actual enumeration would be less vulnerable to manipulation than an estimate. 525 U.S. at 349.

Thus, for this reason as well, the district was incorrect in concluding that the Constitution tolerates the use of "narrowly tailored statistical methodologies" as long as they "improve the accuracy of the census." This Court should note probable jurisdiction to review that incorrect conclusion, and to establish once and for all that the Census Clause requires apportionment to be based only on an "actual enumeration" rather than a method that is part enumeration and part estimation.

CONCLUSION

For the foregoing reasons, the Court should note probable jurisdiction and reverse the judgment of the district court.

Respectfully submitted,

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November 20, 2001

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APPENDICES

APPENDIX A

IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF UTAH, CENTRAL DIVISION

[Filed Nov. 1, 2001]

No. 2:01CV292G

STATE OF UTAH; MICHAEL O. LEAVITT, Governor; OLENE S. WALKER, Lieutenant Governor; MARK L. SHURTLEFF, Utah Attorney General; L. ALMA MANSELL, President of the Utah Senate; MARTIN R. STEPHENS, Speaker of the Utah House; MIKE DMITRICH, Utah Senate Minority Leader; RALPH BECKER, Utah House Minority Leader; ORRIN G. HATCH, United States Senator; ROBERT F. BENNETT, United States Senator; JAMES V. HANSEN, Member of Congress; CHRISTOPHER B. CANNON, Member of Congress; JAMES MATHESON, Member of Congress; BLAKE J. RUSSON; MICHAEL WAYNE ANDERSON; BRENT MCGHIE; JEAN MCGHIE,

Plaintiffs,

v.

DONALD L. EVANS, Secretary of Commerce; WILLIAM G. BARRON, Director, United States Census Bureau,

Defendants,

STATE OF NORTH CAROLINA; MICHAEL F. EASLEY, Governor; BEVERLY PERDUE, Lieutenant Governor; ROY COOPER, North Carolina Attorney General; MARC BASNIGHT, President Pro Tempore of the North Carolina Senate; JAMES BLACK, Speaker of the North Carolina House; PATRICK BALLENTINE, North Carolina Senate Minority Leader; LEO DAUGHTRY, North Carolina House Minority Leader; JESSE HELMS, United States Senator; JOHN EDWARDS, United States Senator; EVA M. CLAYTON,

Member of Congress; BOB ETHERIDGE, Member of Congress; WALTER B. JONES, Member of Congress; DAVID PRICE, Member of Congress; RICHARD BURR, Member of Congress; J. HOWARD COBLE, Member of Congress; MIKE MCINTYRE, Member of Congress; ROBIN HAYES, Member of Congress; SUE MYRICK, Member of Congress; T. CASS BALLENGER, Member of Congress; CHARLES H. TAYLOR, Member of Congress; MELVIN L. WATT, Member of Congress,

Intervenors.

MEMORANDUM OPINION

Before MICHAEL R. MURPHY, *Circuit Judge*, DALE A. KIMBALL, *United States District Judge*, and J. THOMAS GREENE, *Senior United States District Judge*.

MURPHY, *Circuit Judge*.

The State of Utah and numerous elected Utah officials ("Plaintiffs") bring this suit against the Secretary of Commerce and the Acting Director of the Census Bureau ("Defendants") seeking injunctive and declaratory relief. Plaintiffs contend that Defendants' use of a statistical method known as "hot deck imputation" during the 2000 decennial census violated various statutory provisions and the Constitution. Furthermore, Plaintiffs allege that had the Census Bureau not supplemented the apportionment count by hot deck imputation, "Utah would have been entitled to 4 seats in the United States House of Representatives beginning in 2003, North Carolina would have been entitled to 12 seats, and no other state's apportionment would have been affected." The State of North Carolina and several of its elected officials ("Intervenors") have intervened as party defendants in this action.

This three-judge panel of the United States District Court for the District of Utah was convened pursuant to Plaintiffs' request under 28 U.S.C. § 2284. Plaintiffs have filed a

motion for summary judgment. Defendants and Intervenors have each filed a motion designated as a motion to dismiss or, in the alternative, cross-motion for summary judgment. All parties have filed responses to the competing motions for summary judgment and/or dismissal and Defendants have filed the administrative record.

This court may grant summary judgment "if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." Fed. R. Civ. P. 56(c). For the reasons set out below, this court grants Defendants' and Intervenors' cross-motions for summary judgment, and denies Plaintiffs' motion for summary judgment.

I. BACKGROUND [1]

This is the second complaint filed by Plaintiffs challenging the methods employed by Defendants in conducting the 2000 decennial census. In a prior complaint, Plaintiffs alleged that Defendants violated numerous statutory provisions and the Constitution when they refused to count in the 2000 census LDS missionaries serving missions abroad, while, at the same time, enumerating federal employees working abroad. *See Utah v. Evans*, 143 F. Supp. 2d 1290, 1293 (D. Utah 2001) (*Evans I*).[2] A three-judge panel of this court granted sum-

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[1] The facts recited in this portion of the court's opinion are undisputed by the parties.

[2] Plaintiffs attempted to raise the claims which are the subject of the instant complaint before the three-judge court in *Evans I* by filing a Motion for Leave to File a Third Amended Complaint. In denying Plaintiffs' motion, the *Evans I* court noted that Plaintiffs were aware on January 10, 2001, the time of the filing of their original complaint, of the Census Bureau's practice of imputing certain figures for purposes of actually enumerating the population of the states. The court further noted that Plaintiffs had "continually represented . . . that an expedited decision

mary judgment in favor of Defendants and Intervenors on the claims raised in the earlier complaint, concluding as follows: (1) Plaintiffs lacked statutory standing to bring their challenge under the Administrative Procedures Act ("APA"); (2) Plaintiffs failed to come forward with any evidence that the decision not to enumerate missionaries serving outside of the country burdened the missionaries' religious beliefs or practices; (3) the decision to enumerate federal employees working outside of the country, in combination with the failure to enumerate missionaries serving outside of the country, did not violate either the Census Act or the Constitution. *See id.* at 1296, 1297, 1299, 1301. In so ruling, the prior three-judge panel set forth the following useful synopsis of the workings of the decennial census:

> The decennial Census is conducted pursuant to the requirement imposed by Article I of the United States Constitution and the Fourteenth Amendment that seats in the United States House of Representatives be "apportioned among the several States according to their respective numbers, counting the whole number of persons in each State." U.S. Const. amend. XIV, § 2; U.S. Const. art. I, § 2, cl. 3. The "counting" of the "number of persons in each State" is accomplished by "actual Enumeration," conducted every ten years, "in such Manner as [Congress] shall by Law direct." U.S. Const. art. I, § 2, cl. 3; *Franklin v. Massachusetts*, 505 U.S. 788, 791, 112 S. Ct. 2767, 120 L. Ed.2d 636 (1992).
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> Congress, by means of the Census Act, 13 U.S.C. §§ 1-196, has delegated to the Secretary of the Department of Commerce the responsibility to "take a decen-

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was imperative" and that "the Second Amended Complaint covered and represented plaintiffs' position." Accordingly, the *Evans I* court concluded that Plaintiffs' motion to file their Third Amended Complaint should be denied on the basis of undue delay.

> nial census of population . . . in such form and content as he may determine." 13 U.S.C. § 141(a). The Secretary is assisted in that endeavor by the Director of the Census Bureau who "shall perform such duties as may be imposed upon him by law, regulations, or orders of the Secretary." 13 U.S.C. § 21. The Supreme Court has acknowledged that "the text of the Constitution vests Congress with *virtually unlimited discretion* in conducting the decennial" Census and such wide discretion commands extraordinary deference. *Wisconsin v. City of New York*, 517 U.S. 1, 19, 116 S. Ct. 1091, 134 L. Ed.2d 167 (1996) (emphasis added). Thus, the Secretary's conduct of the Census must "bear only a reasonable relationship to the accomplishment of an actual enumeration of the population, keeping in mind the constitutional purpose of the census." *Id.* at 20, 116 S. Ct. 1091; *see also United States Dep't of Commerce v. Montana*, 503 U.S. 442, 464, 112 S. Ct. 1415, 118 L. Ed.2d 87 (1992) (noting that Congress's "apparently good-faith choice of a method of apportionment of Representatives among the several States 'according to their respective Numbers' commands far more deference" than state districting decisions).
>
> Under the Census Act, "[t]he tabulation of total population by States . . . as required for the apportionment of Representatives in Congress . . . shall be completed within 9 months after the census date and reported by the Secretary to the President of the United States." 13 U.S.C. § 141(b). Upon receipt of the Secretary's report, the President:
>
> > shall transmit to the Congress a statement showing the whole number of persons in each State . . . as ascertained under the . . . decennial census of the population, and the number of Representatives to which each State would be entitled under an appor-

> tionment of the then existing number of Representatives by the method known as the method of equal proportions.
>
> 2 U.S.C. § 2a(a). The Clerk of the House of Representatives then sends to "the executive of each State a certificate of the number of Representatives to which such State is entitled." 2 U.S.C. § 2a(b). With respect to Census 2000, the Secretary of Commerce delivered the Census 2000 data to the President on December 28, 2000, and the President, in turn, transmitted the counts to the Clerk of the House of Representatives on January 4, 2001. The Clerk notified Utah of its number of representatives on January 16, 2001.

Id. at 1293-94.

In an attempt to obtain a completed census questionnaire from every housing unit for the 2000 census, the Census Bureau developed a Decennial Master Address File ("DMAF") which contained the mailing address, street address, and census block location of every housing unit in the United States. The DMAF contains both "city-style addresses" and "non-city-style addresses." A primary source of city-style addresses was the United States Postal Service. A second primary source of city-style addresses was the address list compiled during the 1990 census. Units of local and tribal governments also assisted by reviewing the addresses in the DMAF to confirm the existence of the units and to provide additional addresses that might have been missing from the address list. The non-city-style addresses were obtained through a systematic field operation in which Census Bureau staff visited each living quarters in an assigned area to obtain the occupant's name and mailing address. The areas were revisited twice and a Census 2000 questionnaire was left at each living quarters.

For the 2000 census, there were three basic data collection methods: (1) mailout/mailback (Postal Service delivered questionnaires to the vast majority of housing units with city-style addresses); (2) update/leave (in areas with predominantly non-city-style addresses, enumerators left addressed census questionnaires at each housing unit); and (3) list/enumerate (in very remote areas, enumerators visited each housing unit and completed a short or long census questionnaire).[3] The Census Bureau made numerous attempts to obtain census information from non-responding housing units. For the non-responding housing units that ultimately could not be contacted, imputation was used.

In the 2000 census, imputation was used to complete the population count when the following situations were presented: (1) occupied units with no population count ("household size imputation"); (2) existing units whose occupied or vacant status was unknown ("occupancy imputation"); and (3) unclassified units for which nothing was known—occupied, vacant, or nonexistent status ("status imputation"). The third category included units which at some point in time were reported to exist and therefore appeared in the DMAF. With status imputation, the process resulted in units either being deleted from the DMAF, imputed as vacant, or imputed as occupied. If imputed as occupied, the number of inhabitants also was imputed.

The national percentage of imputed individuals in the 2000 census amounted to 0.4% of the total population. The distribution of the housing units for which imputation was used is as follows: 56.2% of the units were imputed as occupied, 34.2% imputed as vacant, and 9.6% imputed as

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[3] Several additional data collection methods were employed to improve coverage in difficult-to-enumerate areas and to enumerate "special populations," such as military personnel, persons living in a group home, and homeless persons or persons otherwise without a fixed residence.

nonexistent and therefore deleted from the DMAF.[4] In North Carolina and Utah, 0.4% and 0.2% of the populations were imputed respectively.

The Census Bureau used an imputation process called a hot deck method.[5] Hot decks are distributions of values that are constantly altered as questionnaires are processed. Using this method, imputation of a missing entry was made from the last value (the last person or housing unit) stored in the matrix that fit other known characteristics of the person or housing unit. Typically, the records from a nearby, fully-enumerated household of the same size were duplicated. Donor households supplying the characteristics or counts imputed were restricted to those requiring field follow-up. If possible, both the donor and the donee, the address to which the characteristics and counts were imputed, shared the characteristic of a single-unit structure or multi-unit structure.

Although imputation was used in the 1940 and 1950 censuses to determine characteristics of the population, it was not used to determine the actual population count for apportionment purposes until 1960. In 1980, the Census Bureau's use of count imputation shifted one congressional seat from Indiana to Florida. *See Orr v. Baldrige*, No. IP-81-604-C, slip. op. (D. Ind. July l, l985). Indiana challenged the outcome, but the district court ruled in favor of Florida. Notably, both parties agreed that imputation was not a form of sampling. No appeal was taken from the decision in *Orr*.

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[4] This compares to the following distribution for housing units where imputation was not necessary: 87.3% were occupied, 8.4% were vacant, and 4.3% were nonexistent.

[5] The parties' memoranda refer to both "characteristic imputation" and "count imputation." Characteristic imputation involves the imputation of characteristics, such as age, gender, etc., which do not affect apportionment. Count imputation refers solely to the imputation of the population numbers, which directly affect the apportionment count.

The parties in this case agree that without the use of imputation in the 2000 census, Utah would have been entitled to a fourth congressional seat. Further, the parties agree that without the use of status imputation, Utah would have been entitled to the seat. In its filings before this court, Plaintiffs challenge both the use of imputation in general and the use of status imputation in particular.

II. JURISDICTION/JUSTICIABILITY

Plaintiffs' complaint sets forth the following three separate causes of action: (1) Defendants' use of imputation violates the APA because Defendants have failed to provide a rational basis for the use of imputation instead of "traditional methods" of enumeration, have failed to reconcile the use of imputation with 13 U.S.C. § 195, and have failed to reconcile the use of imputation with the constitutional requirement of an "actual enumeration"; (2) Defendants' utilization of imputation violates the prohibition against the use of statistical sampling for reapportionment purposes set out in section 195 of the Census Act; and (3) the use of imputation violates the constitutional requirement of an "actual enumeration." Before addressing the merits of these claims, however, this court must address potential jurisdictional deficiencies in Plaintiffs' claims whether or not posed by Defendants or Intervenors. *See Steel Co. v. Citizens for a Better Env't*, 523 U.S. 83, 93-95 (1998) (holding that federal courts must address jurisdictional issues before reaching merits).

A. Census Act and Census Clause Claims

In their reply memorandum, Intervenors assert that although this court can enter declaratory and injunctive relief prohibiting the use of imputation in the next decennial census in 2010, this court cannot affect the apportionment tallies flowing from the 2000 census because the President has already transmitted to Congress the statement required by 2 U.S.C. § 2a(a) and the Clerk of the House of Represen-

tatives has already sent to the states a certificate of the number of Representatives to which each state is entitled as required by 2 U.S.C. § 2a(b). To the extent Intervenors are attempting to question this court's jurisdiction, we conclude the Supreme Court's decision in *Franklin v. Massachusetts*, 505 U.S. 788 (1992), establishes that Plaintiffs' Census Act and constitutional claims are justiciable.

In *Franklin,* Massachusetts brought suit against the President, Secretary of Commerce, Census Bureau officials, and the Clerk of the House of Representatives challenging the enumeration and attribution of overseas military personnel to the state designated in the personnel files as their "home of record." *See id.* at 790-91. Massachusetts contended that the inclusion of overseas military personnel altered the relative state populations enough to shift a congressional seat from Massachusetts to Washington. *See id.* at 791. A three-judge district court concluded that the enumeration of military personnel serving abroad was arbitrary and capricious under the APA. As a remedy, the district court directed the Secretary of Commerce to eliminate the overseas military personnel from the apportionment count, directed the President to recalculate the appropriate number of representatives to which each state was entitled and to transmit those new calculations to Congress, and directed the Clerk of the House of Representatives to inform the states of the change. *See id.* The federal defendants appealed. *See id.*

Before addressing the merits of Massachusetts' constitutional claims, the Court noted that the suit raised a "thorn[y] standing question." *Id.* at 802. According to the Court, there was serious doubt whether jurisdiction existed to enter an injunction directing the President to recalculate and retransmit reapportionment figures to Congress. Absent such an injunction, a question existed whether Massachusetts' injury was redressable. *See id.* at 802-03. Nevertheless, a plurality of the Court concluded that the case was justiciable, stating:

> For purposes of establishing standing, however, we need not decide whether injunctive relief against the President was appropriate, because we conclude that the injury alleged is likely to be redressed by declaratory relief against the Secretary alone. The Secretary certainly has an interest in defending her policy determinations concerning the census; even though she cannot herself change the reapportionment, she has an interest in litigating its accuracy. And, as the Solicitor General has not contended to the contrary, we may assume it is substantially likely that the President and other executive and congressional officials would abide by an authoritative interpretation of the census statute and constitutional provision by the District Court, even though they would not be directly bound by such a determination.

Id. at 803 (citations omitted). Although only four Justices joined this portion of *Franklin,* a separate group of four Justices also concluded that Massachusetts' constitutional claims failed on the merits, albeit with no discussion of the question of justiciability. *See id.* at 820 (Stevens, J., concurring in part and concurring in the judgment) ("For the reasons stated in Part IV of the Court's opinion, I agree that the inclusion of overseas employees in state census totals does not violate the Constitution."). This led Justice Scalia to note in his separate opinion that the Court had concluded the case was justiciable. *See id.* at 824 n.1 (Scalia, J., concurring in part and concurring in the judgment) ("Although only a plurality of the Court joins that portion of Justice O'CONNOR's opinion which finds standing (Part III), I must conclude that the *Court* finds standing since eight Justices join Part IV of the Court's opinion discussing the merits of appellees' constitutional claims.").

This case stands in the identical posture as *Franklin.* This court clearly has jurisdiction to enter injunctive and

declaratory relief against Defendants. *See id.* at 802. Furthermore, this court can assume that the President, who is not a party as he was in *Franklin*, would abide by an authoritative interpretation of the Constitution and Census Act. *See id.* at 803. Finally, this court can assume that if the President transmits revised reapportionment calculations to Congress, the Clerk of the House of Representatives would submit a new certificate to the states pursuant to 2 U.S.C. § 2a(b). *See id.; see also id.* at 824 (Scalia, J., concurring in part and concurring in the judgment) ("[I]n light of the Clerk's purely ministerial role, we can properly assume that insofar as *his* participation is concerned, the sequence of events [envisioned by the majority] will occur."). Accordingly, Plaintiffs' Census Act and constitutional claims are justiciable.

B. APA Claim

This court reaches a different jurisdictional conclusion with regard to Plaintiffs' APA claim. Plaintiffs can advance their APA claim only if they can satisfy the statutory standing requirements set out in the APA. In particular, Plaintiffs must demonstrate that Defendants undertook "final agency action for which there is no other adequate remedy in a court." 5 U.S.C. § 704; *see also Colo. Farm Bureau Fed'n v. United States Forest Serv.*, 220 F.3d 1171, 1173 (10th Cir. 2000). Defendants assert that the Supreme Court's decision in *Franklin* forecloses APA review. Plaintiffs, on the other hand, claim they have statutory standing under section 209 of Public Law Number 105-119. *See* Pub. L. No. 105-119, Title II, § 209, 111 Stat. 2440, 2480-83 (1997) (reproduced in the notes to 13 U.S.C. § 141). Upon review of the parties' submissions and the pertinent authorities, this court concludes that *Franklin* controls and Plaintiffs lack statutory standing to bring their APA claim.

The three-judge panel in *Evans I* summarized the holding in *Franklin* as follows:

> In *Franklin,* Massachusetts challenged the apportionment determination following the 1990 Census, in which federal overseas employees were counted, and which resulted in Massachusetts' loss of a Congressional seat. A three-judge panel of the district court held that the inclusion of such federal overseas employees was arbitrary and capricious under the APA. On appeal, the Supreme Court reversed, holding, with respect to Massachusetts' APA claim, "[b]ecause it is the President's personal transmittal of the report to Congress that settles the apportionment, until he acts there is no determinate agency action to challenge." *Franklin*, 505 U.S. at 799, 112 S. Ct. 2767. Because the President is not an agency, there was no statutory standing to challenge the apportionment under the APA.

143 F. Supp. 2d at 1295-96. Based on *Franklin,* the court in *Evans I* held that Plaintiffs lacked statutory standing to bring an APA challenge to Defendants' failure to enumerate overseas missionaries, while enumerating federal employees serving overseas. *See id.* at 1296.

Plaintiffs contend, however, that they have APA standing to challenge Defendants' use of imputation during the 2000 census based on section 209 of Public Law Number 105-119. Section 209(b) provides as follows:

> Any person aggrieved by the use of any statistical method in violation of the Constitution or any provision of law . . . in connection with the 2000 or any later decennial census, to determine the population for the purposes of the apportionment or redistricting of Members in Congress, may in a civil action obtain declaratory, injunctive, and any other appropriate relief against the use of such method.

§ 209(b), 111 Stat. at 2481. Plaintiffs' contentions notwithstanding, this court concludes that section 209 does not create

statutory standing to bring the type of APA challenge at issue here. We are well aware the Supreme Court has indicated that section 209 eliminates the prudential standing concerns addressed in *Franklin*. *See Dep't of Commerce v. United States House of Representatives*, 525 U.S. 316, 328-29 (1999). In this case, however, unlike *House of Representatives*, Plaintiffs' challenge comes after the 2000 census has been completed, the President has transmitted reapportionment figures to Congress, and the Clerk of the House of Representatives has issued a certificate to each state indicating the number of representatives to which that state is entitled. We conclude that this differing procedural posture disposes of Plaintiffs' claim that section 209 creates statutory standing for their APA claim.

In section 209(d), Congress defined an "aggrieved person" for purposes of bringing the action allowed under section 209 as, *inter alia,* "any resident of a State whose congressional representation or district *could be changed* as a result of the use of a statistical method challenged in the civil action." § 209(d)(1), 111 Stat. at 2482 (emphasis added). This language evidences congressional intent to facilitate a prospective remedy for any constitutional or statutory infirmity in a procedure Defendants propose to use in a decennial census before the procedure is actually used. Indeed, the remedy set out in section 209(b) specifically contemplates only a prospective relief: "declaratory, injunctive, and any other appropriate relief *against the use* of" any statistical method that violates the Constitution or any other provision of law. § 209(b), 111 Stat. at 2481 (emphasis added).

Congress clearly intended section 209 to provide a vehicle for expedited review of the methods chosen by Defendants for use in the 2000 census prior to the actual undertaking and completion of the census. This conclusion is borne out by the congressional findings accompanying Section 209, which explicitly recognize that

> the decennial enumeration of the population is a complex and vast undertaking, and if such enumeration is conducted in a manner that does not comply with the requirements of the Constitution or laws of the United States, it would be impracticable for the States to obtain, and the courts of the United States to provide, meaningful relief *after* such enumeration has been conducted.

§ 209(a)(8),111 Stat. at 2481 (emphasis added). Moreover, Congress recognized that its desire to have these types of challenges resolved prior to the actual conduct of the census was essential in order to fulfill its "commit[ment] to providing the level of funding that is required to perform the entire range of constitutional census activities." § 209(a)(9), 111 Stat. at 2481. In furtherance of this goal, Congress specifically deemed "sufficiently concrete and final" several precursor acts undertaken by Defendants in the years leading up to the 2000 census.[6]

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[6] In this regard, section 209(c) provides as follows:

> (c) For purposes of this section—
>
> (1) the use of any statistical method as part of a dress rehearsal or other simulation of a census in preparation for the use of such method, in a decennial census, to determine the population for purposes of the apportionment or redistricting of Members of Congress shall be considered the use of such method in connection with that census; and
>
> (2) the report ordered by title VIII of Public Law 105-18 and the Census 2000 Operational Plan shall be deemed to constitute final agency action regarding the use of statistical methods in the 2000 decennial census, thus making the question of their use in such census sufficiently concrete and final to now be reviewable in a judicial proceeding.

Pub. L. No. 105-119, Title II, § 209(c), 111 Stat. 2440, 2481-83 (1997). In light of this provision we can summarily reject Plaintiffs' assertion that section 209 must apply even after the completion of a census because "no plaintiff has standing to bring an APA claim until they have suffered a

III. DISCUSSION

A. Census Act

The Census Clause of the Constitution requires that an "actual Enumeration shall be made within three Years after the first Meeting of the Congress of the United States, and within every subsequent Term of ten Years, in such Manner as they shall by Law direct." U.S. Const. art. I, § 2, cl. 3. The Fourteenth Amendment requires that the House of Representatives be "apportioned amor3 the several States according to their respective numbers, counting the whole number of persons in each State."[7] U.S. Const. amend. XIV, § 2.

In *Wisconsin v. City of New York*, the Supreme Court acknowledged that "the text of the Constitution vests Congress with virtually unlimited discretion in conducting the decennial "actual Enumeration.'" 517 U.S. 1, 19 (1996). Through the Census Act, Congress delegated to the Secretary of the Department of Commerce the responsibility to take a decennial census of the population "in such form and content as he may determine." 13 U.S.C. § 141(a). The Supreme Court held in *Wisconsin* that "so long as the Secretary's conduct of the census is consistent with the constitutional language and the constitutional goal of equal representation, it is within the limits of the Constitution." *Id.* at 19-20

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concrete injury." The Supreme Court recognized as much in *Dep't of Commerce v. United States House of Representatives*, 525 U.S. 316, 328-30 (1999).

[7] To the extent that Plaintiffs' filings could be read to suggest that the reference to "whole number of persons" in the Fourteenth Amendment supports their belief that each individual person must be actually counted in the census, this court summarily rejects the contention. This section of the Fourteenth Amendment amended Article I so that African-Americans are counted as "whole persons" instead of as three-fifths of a person as it was at the time the Constitution was adopted. *Compare* U.S. Const. art. I, § 2, cl. 3 *with* U.S. Const. amend. XIV, § 2.

(quotation and citation omitted). The Secretary's decisions "need bear only a reasonable relationship to the accomplishment of an actual enumeration of the population, keeping in mind the constitutional purpose of the census." *Id.* at 20.

Plaintiffs contend, however, that 13 U.S.C. § 195, as interpreted by the Supreme Court in *House of Representatives*, precludes Defendants from using figures derived from imputation for the purpose of reapportioning the House of Representatives. Section 195 provides as follows: "Except for the determination of population for purposes of apportionment of Representatives in Congress among the several States, the Secretary shall, if he considers it feasible, authorize the use of the statistical method known as 'sampling' in carrying out the provisions of this title." 13 U.S.C. § 195. In *House of Representatives,* the plaintiffs challenged the following two sampling programs that the Census Bureau proposed to use during the 2000 census; the Nonresponse Followup Program ("NFP") and the Integrated Coverage Measurement ("ICM"). *See* 525 U.S. at 324-25. Under the NFP, enumerators would have visited a randomly selected sample of nonresponding housing units, which would be statistically representative of all housing units in a nonresponding tract, and would use this information to estimate the characteristics of the remaining 100 nonresponding units for which the Census Bureau had no information. *See id.* Under the ICM, stratified sampling would have been used by the Bureau. *See id.* at 325. Each of the country's seven million census blocks were classified into strata, defined by the characteristics of each block. *See id.* The Census Bureau would select blocks at random from each stratum to conduct interviews and estimate characteristics of the whole based on these results. *See id.* The Supreme Court held that § 195 of the Census Act "directly prohibits the use of sampling in the determination of population for purposes of apportionment." *Id.* at 338. The Court indicated that whether sampling was used as a supplement or as a substitute

its use to determine the population is impermissible. *See id.* at 342.

With this authority as a backdrop, Plaintiffs assert that hot deck imputation is sampling and that its use by Defendants in the 2000 census violated section 195. In particular, Plaintiffs claim that through the use of hot deck imputation, Defendants sought to estimate by means of a sample or statistical model people who were not actually counted by traditional methods of enumeration. Accordingly, the essence of Plaintiffs' argument is that sampling and imputation are indistinguishable because in both processes, a portion of the population is used to infer information about the population as a whole.

Whether hot deck imputation is sampling and thus forbidden by section 195 is a question of law for this court to decide. *See Walker v. United Parcel Serv., Inc.*, 240 F.3d 1268, 1277 (10th Cir. 2001) (holding that the proper interpretation of a federal statute is a question of law). For this reason, the divergent views of the parties' experts as to whether imputation is sampling does not create a question of fact precluding summary judgment. This court has considered the views of those experts, however, and finds them helpful in resolving Plaintiffs' claims.

We begin by noting that section 195 does not preclude the Census Bureau from the use of every type of statistical methodology in arriving at apportionment figures during a decennial census. Instead, it prohibits only "the use of the statistical method known as 'sampling.'" 13 U.S.C. § 195. The parties' submissions lead us to conclude that statistical sampling and imputation are separate statistical methodologies and that they were viewed as such at the time of the enactment of § 195. In this regard, we agree with the following passage in *Orr v. Baldridge:*

> The first procedure for collecting data for the 1980 decennial census was the mailout-mailback method, whereby questionnaires where mailed to [almost every housing unit in the United States]. Although the recipients were instructed to mail the questionnaires back to the Census Bureau ("the Bureau"), some questionnaires were not returned. All housing units for which questionnaires were not returned were scheduled for follow-up enumeration, which included visits by at least two different enumerators. If information was not obtained in this process, enumerators sought information from knowledgeable outside sources, such as landlords or neighbors. Even after this procedure, the occupancy status (vacant or occupied) and/or the number of people in the unit could not be determined for some units ("unclassified units").
>
> The Bureau then had the task of selecting a method for dealing with the problem of unclassified units so as to minimize distortion in the population counts. The alternative suggested by the State of Indiana and its Governor, ignoring the units or tabulating them as "not reported," is the equivalent of imputing zero or no persons in the unclassified units. This would result in an undercount of the population because some of the classified units were known to be occupied.
>
> . . . .
>
> The plaintiffs concede, and the Court agrees, that hot deck imputation is not sampling. Sampling is the selection of a subset of units from a larger population in such a way that each unit of the population has a known chance of selection. Sampling is used where a scientifically selected set of units can be used to represent the entire population from which they are drawn. Inferences about the entire population can be based on sample results. Imputation, on the other hand,

> is a procedure for determining a plausible value for missing data. Imputation is used in both sample surveys and censuses with the goal of achieving as complete as possible an enumeration of the sampled or population units. In short, sampling is one of a variety of techniques which *may* be used in an attempt to improve the accuracy of a count (unless, as here, it is prohibited by law), while imputation, in some form, *must* be performed once the census taker determines that data from known and identified housing units is missing. Thus hot deck imputation does not violate § 195's specific ban on sampling.
>
> . . . [T]he Bureau had to use some form of imputation. Some action had to be taken with regard to the small number of identified housing units from which either no information or incomplete information was obtained. Every option available to the Bureau encompassed some form of imputation, either implicitly or explicitly.

Slip. op. at 3-4, 5-7.

Although Plaintiffs struggle mightily to convince the court that sampling and imputation are two aspects of the same methodology, their arguments are not borne out by the record. Sampling is the technique of determining the traits of the entire population by collecting and analyzing data from a representative segment of that population. In hot deck imputation, on the other hand, there is no representative sample from which to infer the characteristics of the larger population. Instead, a single, fully enumerated housing unit is used to draw conclusions about a neighboring housing unit for which data is missing. That is, imputation is used to fill in missing data on the assumption that similar types of dwellings in the same geographic area will have similar characteristics.

The administrative record and the parties' filings furthermore make clear that sampling is a statistical methodology utilized at the data collection stage, while imputation is a distinct statistical methodology utilized at the data processing stage. That is, with a census or survey based on sampling, a sample design is created identifying a particular portion of the population that will be surveyed. Only those pre-identified persons or housing units are contacted for the purpose of data collection. That data is then processed and used to make conclusions about a larger population. Imputation, on the other hand, is used only at the data processing stage. It is only employed to account for discrete incomplete or inconsistent data. For instance, imputation is used to assign a value to an empty field on an otherwise completed questionnaire or to complete a blank questionnaire, thereby forming a complete record for a given respondent. Imputation is also used when two responses on a questionnaire are inconsistent, rendering one of the responses implausible, *e.g.,* a response could indicate that a person is two-years old and also the spouse of the householder.

The administrative record and the parties' filings demonstrate that, if utilized, sampling and imputation operate at completely different levels and entirely independent of each other. Accordingly, although both methodologies could conceivably improve the accuracy of a given survey or census, they are not the same statistical method. Because imputation is not "the statistical method known as 'sampling,'" section 195 does not prohibit its use in the 2000 census. 13 U.S.C. § 195. For that same reason, the Supreme Court's decision in *House of Representatives,* a case clearly dealing with proposed sampling methodologies, does not foreclose the use of imputation in the 2000 census.

In concluding that imputation is "the statistical method known as 'sampling,'" Judge Greene quite correctly notes in his dissent that the Census Bureau did seem to blur the

distinction between sampling and imputation in its 1997 report to Congress. *See* Dissenting Op. at 3; *see also* United States Department of Commerce Bureau of the Census, Report to Congress—The Plan for Census 2000, at 23 (Revised and Reissued August 1997) (noting the historic use of "statistical methods" such as imputation in a section of the report with the following heading: "Reliance on Sampling in Previous Censuses"). Because this court found it unnecessary to reach the question of whether the Census Bureau's interpretation of § 195 is entitled to *Chevron* deference,[8] we have not relied on reports produced by the Census Bureau in determining the meaning of § 195. Nevertheless, it must be noted that the 1997 report to Congress was produced at a time when the Census Bureau was seeking to assuage concerns by many members of Congress over the proposed use of sampling in Census 2000. It apparently chose to do so by tying imputation, a statistical methodology utilized by the Census Bureau since 1960, to the sampling programs at issue in *House of Representatives*. Under these circumstances, we think that the 1997 report to Congress has very little to say with regard to whether imputation is "the statistical method known as 'sampling.'" 13 U.S.C. § 195.

Furthermore, we do not see how the dissent takes any comfort from the comments by Census Bureau officials set forth in *Young v. Klutznick*, 652 F.2d 617, 621 (1981). *See* Dissenting Op. at 3-4. The parties do not contest that count imputation has been used in each decennial census since 1960. Furthermore, as *Orr v. Baldridge* makes clear, the use of imputation shifted one seat in the House of Representatives from Indiana to Florida in the 1980 decennial census. With this backdrop, the comments of the Census Bureau officials in *Young* regarding the 1980 decennial census clearly demonstrates that the Census Bureau did not think that imputation

[8] *Chevron U.S.A., Inc. v. Natural Res. Def. Council*, 467 U.S. 837 (1984).

was prohibited by § 195. Instead, what was at issue in *Young*, was the question of whether gross estimates would be used to attribute a possible undercount of five million people to various states and localities without adequate statistical methodologies. *See Young*, 653 F.2d at 621 ("[Census Bureau officials] explained that survey techniques and demographic analysis were not sufficiently advanced as sciences to permit distribution or allocation of the estimated undercount to states and localities on anything other than a pro rata basis using population figures from the census.").

Finally, we do not think that Justice Breyer's dissenting opinion in *House of Representatives* can be read for the proposition that imputation is the "statistical method known as sampling." Instead, we read Justice Breyer's dissent as asserting that § 195 does not preclude the use of any statistical methodology in the census, as long as that methodology is only used to supplement, as opposed to establish, the apportionment count. *See House of Representatives*, 525 U.S. at 350 (Breyer, J., dissenting) ("The language of § 195 permits a distinction between sampling used as a substitute and sampling used as a supplement."). In that vein, Justice Breyer noted that imputation was simply one such method used by the Census Bureau and expressly recognized that it was distinct from sampling. *Compare id.* at 352 (Breyer, J., dissenting) ("Census Bureau practice also helps to support this limited interpretation of the [§ 195's] scope. Both before and after § 195 was enacted in 1957, the census has used sampling techniques in one capacity or another in connection with its determination of population, most often as a quality check on the headcount itself."), *with id.* (Breyer, J., dissenting) ("The Census Bureau *has also used a form of statistical estimation to adjust or correct the actual headcount.* Since at least 1940, the Census Bureau has used an estimation process called 'imputation' to fill in gaps in its headcount." (emphasis added)).

For the reasons set out above, this court concludes that hot deck imputation is not "the statistical method known as 'sampling.'" 13 U.S.C. § 195. Thus its use by Defendants during Census 2000 did not violate the Census Act.

B. Census Clause

As noted above, taken together, Article I of the Constitution and the Fourteenth Amendment require an "actual Enumeration" of the "whole number of persons in each State" every ten years. U.S. Const. art. I, § 2, cl. 3; *id.* amend. XIV, § 2. Relying on what they contend is the plain meaning of the phrase "actual enumeration," discussions during the Constitutional Convention demonstrating that the Founders understood the difference between a head count and an estimation of the population, and Justice Scalia's separate opinion in *House of Representatives,* Plaintiffs contend that the Constitution forbids the use of any statistical estimations in the conducting of a decennial census. Upon review of the record and pertinent authorities, these arguments are unconvincing.

As noted above, the Constitution provides that the decennial censuses shall take place "in such Manner as [Congress] shall by Law direct." *Id.* art. I, § 2, cl. 3. This text vests Congress with virtually unlimited discretion in conducting the decennial actual Enumeration. *See Wisconsin,* 517 U.S. at 19. Congress has delegated its broad authority to the Secretary of Commerce. *See* 13 U.S.C. § 141(a). In light thereof, the Supreme Court has held that so long as the Secretary of Commerce's conduct of the census is "consistent with the . . . constitutional goal of equal representation, it is within the limits of the Constitution." *Wisconsin,* 517 U.S. at 19-20 (quotation omitted); *see also id.* at 20 (holding that decisions of the Secretary of Commerce "need bear only a reasonable relationship to the accomplishment of an actual enumeration of the population, keeping in mind the constitutional purpose of the census").

In view of the record, this court concludes that Defendants' use of imputation during the 2000 census was reasonably consistent with the accomplishment of an actual enumeration of the population. In the 2000 census, the Census Bureau processed data for over 120 million households, including over 147 million paper questionnaires and 1.5 billion pages of printed material. The workload during peak operations was approximately 3.3 million forms per day. In light of the enormity and complexity of this undertaking, it is inconceivable that the Constitution prohibits the use of statistical methodologies to account for missing and incomplete data. As noted by the court in *Orr*, some type of imputation must take place by practical necessity, whether it is the imputation of statistically plausible values for the missing data or the imputation of a zero. The latter approach appears clearly inconsistent with the constitutional imperative of an actual enumeration. In fact, a study conducted by the Census Bureau after the completion of the 2000 census demonstrates that the vast majority of the unclassified housing units for which a status was imputed, roughly seventy-five percent, were added by census enumerators in the field or other census programs. The study reveals that these units were clearly valid residences that were simply not captured because of errors at the data-processing stage. Forcing Defendants to ignore these residences hardly seems consistent with an actual enumeration of the population.[9]

The court further concludes that Plaintiffs' effort to ascribe some exalted meaning to "actual enumeration" fails when that term is considered in the context of the entire text of Article I and the history of the Census Clause. It is clear from the text of Article I, when read in conjunction with the proceedings of the Constitutional Convention, that the first apportionment of

[9] For this reason, in addition to rejecting Plaintiffs' objections to imputation generally, we also reject Plaintiffs' objections to status imputation in particular.

the House of Representatives was necessarily based on the grossest of estimates. *See* U.S. Const. art. I, § 2; 1 Max Farrand, Records of the Federal Convention of 1787, at 578-79 (1927) (explaining that delegates to the Constitutional Convention recognized that the first apportionment would be based on a "conjectural ratio"). The constitutional requirement of an enumerative census was simply to distinguish that process from the conjectural apportionment of the first Congress. Furthermore, the phrase "actual enumeration," so heavily relied on by Plaintiffs, was added by the Committee of Style and Arrangement, a committee which did not operate to alter the substance of any of the resolutions passed by the Constitutional Convention. *Cf. Nixon v. United States*, 506 U.S. 224, 231 (1993). This court is simply unwilling to adopt the draconian interpretation Plaintiffs would have us ascribe to "actual enumeration."

As a final matter, we note that Plaintiffs' reliance on Justice Scalia's separate opinion in *House of Representatives* is unavailing. It is true that Justice Scalia and the three Justices joining his separate opinion in *House of Representatives* seemed to opine that the use of "estimation techniques" in conducting the decennial censuses would violate the Census Clause. 525 U.S. at 347-48 (Scalia, J., concurring in part). Nevertheless, Justice Stevens and the three Justices that joined his dissenting opinion clearly indicated that statistical methodologies used to improve the accuracy of the census count, including statistical sampling, were consonant with the Constitutional requirement of an "actual enumeration." *Id.* at 362-64 (Stevens, J., dissenting). Justice O'Connor did not offer an opinion on the constitutionality of statistical sampling, noting that it was unnecessary to do so in light of the conclusion that the proposed sampling programs violated § 195. *See id.* at 343-44. Faced with this split, and in light of the analysis set out above, this court concludes that the Constitution does not prohibit the use of narrowly tailored statistical methodologies,

such as hot deck imputation, for the purpose of improving the accuracy of the decennial census and furthering "the constitutional goal of equal representation." *Franklin*, 505 U.S. at 804.

IV. CONCLUSION

For those reasons set out above, this court GRANTS Defendants' and Intervenors' motions for summary judgment and DENIES Plaintiffs' motion for summary judgment. The clerk is directed to enter judgment accordingly.

DATED this, 1st day of November, 2001.

/s/ Michael R. Murphy
MICHAEL R. MURPHY
United States Circuit Judge

/s/ Dale A. Kimball
DALE A. KIMBALL
United States District Judge

No. 2:01CV0023B, *State of Utah v. Evans*

GREENE, United States District Judge, concurring in part and dissenting in part.

I concur with the majority that the plaintiffs' Census Act claim is justiciable. I disagree, however, with the majority's conclusion that the use of imputation to arrive at apportionment numbers in the 2000 Census was not prohibited under 13 U.S.C. § 195, as interpreted by the Supreme Court in *Dep't of Commerce v. House of Representatives*, 525 U.S. 316 (1999). For that reason I would rule that § 195 of the Census Act was violated and that the injunctive and declaratory relief sought by plaintiffs should be granted. My analysis is limited to a consideration of the statute, so I do not reach or discuss the APA or constitutional claims asserted by plaintiffs, and I would abstain from acting thereupon. The issue of disagreement presented by this dissent is whether the use of "imputation" in arriving at the final 2000 Census apportionment count constitutes "sampling" which is prohibited under § 195 of the Census Act. If so, the statute was violated. If not so, no violation occurred.

Judge Michael Murphy, in a very well written opinion for the majority in this case, has ruled that the use of imputation is not prohibited by the statute for the following reasons:

> Sampling is the technique of determining the traits of the entire population by collecting and analyzing data from a representative segment of that population. In hot deck imputation, on the other hand, there is no representative sample from which to infer the characteristics of the larger population. Instead, a single, fully enumerated housing unit is used to draw conclusions about a neighboring housing unit for which *data is missing*. That is, *imputation is used to fill in missing data on the assumption that similar types of dwellings in the same geographic area will have similar characteristics*. Because imputation is not "the statistical method known as 'sampling,'" section 195 does not prohibit its use in the 2000 census.

Majority Opinion at 25 (emphasis added).[1]

> The statute in question, as amended in 1976, provides:
>
> *Except for the determination of population for purposes of apportionment of Representatives in Congress among the several States*, the Secretary shall, if he considers it feasible, authorize the use of the statistical method known as "sampling" in carrying out the provisions of this title.

13 U.S.C. § 195 (emphasis added).

The Supreme Court in *House of Representatives* ruled that "the Section maintains its prohibition on the use of statistical sampling in calculating population for purposes of apportionment" and that a plain reading of the "text of the statute" demonstrates that "the use of sampling for apportionment purposes" is prohibited. 525 U.S. at 339, 343. The court went on to conclude that "the Census Act prohibits the proposed uses of statistical sampling in calculating the population for purposes of apportionment." *Id.* at 343.

---

[1] In coming to its conclusion, the majority relies in part on dicta in *Orr v. Baldrige*, Slip. Op. (D. Ind. July 1,1985), an unappealed district court case in which imputation, apparently for tactical reasons, was stipulated not to constitute sampling. Since that matter did not involve any dispute concerning imputation as related to sampling, the court's dicta was based on a non-issue that was neither briefed nor argued. In this regard, Justice Souter enunciated this admonition in *Church of Lukumi Babalu Aye, Inc. v. City of Hialeah*, 113 S. Ct. 2217, 2247 (1993), as to such undisputed issues: "Sound judicial decisionmaking requires 'both a vigorous prosecution and a vigorous defense' of the issues in dispute . . . ."

Since the use of imputation was not directly before the court in *House of Representatives*, of course there was no ruling as to whether or not it is prohibited by § 195. However, as will be seen, the essence of the use of imputation in Census counting is that it is a form of sampling. As such, it ought to be struck down for the same reasons the proposed uses of statistical sampling were struck down in *House of Representatives*. No definition of sampling was set forth in *House of Representatives*, but for many years the Census Bureau has defined sampling broadly, and its basic meaning has been and is common knowledge. Hence, the "statistical method known as sampling" is no secret and it was aptly described by the Bureau in its 1997 report to Congress thusly:

> In our common experience, "sampling" occurs whenever the information on a portion of a population is used to infer information on the population as a whole. . . . In laymen's terms, a "sample" is taken whenever the whole is represented by less than the whole.

United States Department of Commerce Bureau of the Census, Report to Congress—The Plan for Census 2000, p. 23 (Revised and Reissued August 1997).

Prior to 1994, the Bureau studiously avoided the use of estimates to arrive at a population count for purposes of apportionment. That prior history, including reference to testimony given by the Bureau in court proceedings and to Congress, was noted in the majority opinion written by Justice O'Connor in *House of Representatives*. *See* 525 U.S. at 340. The consistent past opposition by the Census Bureau concerning use of estimates in determining the apportionment count was explained by a Bureau representative in a court proceeding in 1981:

> [S]ince 1790 the census enumeration has never been adjusted to reflect an *estimated* undercount and that in their opinion Congress by statute had prohibited such an

> adjustment in the figures used for purposes of Congressional apportionment.

Young v. Klutznick, 652 F.2d 617, 621 (1981) (emphasis added).

By the mid-1990s, as set forth in its 1997 Census Report to Congress, the Bureau's position had changed and was in full support of the use of sampling, including the use of imputation. In that Report, under a general section entitled "Reliance on Sampling in Previous Censuses" and also under a subheading entitled "Use of Scientific Sampling to Increase Accuracy," imputation and other forms of sampling were discussed. *See* United States Department of Commerce Bureau of the Census, Report to Congress—The Plan for Census 2000, p. 23,[2] The Bureau's reasoning for the use of imputation in Census apportionment counting was articulated by Kenneth Prewitt, then Director of the Bureau. He stated that "the apportionment number includes imputed Census records, that is people we have not talked to, but [which] we impute into the Census file." *Oversight of the 2000 Census: Hearing of the Census Subcommittee of the House of Government Reform Committee*, at 2 (June 22, 2000). Mr. Prewitt further explained:

> [I]n the apportionment number there will be a certain number of Census records which are put there through are imputed process. Those are not people with names. They are not people who filled out a form. They are people who our statistical processes lead us to believe by putting that Census record in there we have given the country a more accurate number. That's an *adjusted* number.

Id. at 3 (emphasis added).

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[2] The Bureau's "Plan for Census 2000" states: "The Census Bureau also has used a form of statistical estimation to adjust or correct its actual headcount. . . ."

In his dissenting opinion in *House of Representatives*, Justice Breyer argued that statistical sampling should be allowed as a *supplement* in arriving at final population figures for purposes of apportionment. *See* 525 U.S. at 353. Justice Breyer then discussed imputation as an appropriate statistical procedure in use by the Census Bureau to "fill in gaps" in arriving at the final population count. *Id.* at 352.

Justice Breyer's description of the way imputation is used to enhance the population count fits well within the definition of sampling used by the Bureau now and historically. Justice Breyer said:

> When an enumerator believes a residence is occupied but is unable to obtain any information about how many people live there, the Census Bureau "imputes" that information based upon the demographics of nearby households. Imputation was responsible, for example, for adding 761,000 people to the Nation's total population in 1980 and 53,590 people in 1990.

Id.

The majority in *House of Representatives* rejected Justice Breyer's position that sampling could properly be used as a supplement in population counting. The same reasoning should apply to the use of imputation as above described.

From the foregoing discussion, imputation is revealed as a form of sampling to establish and enhance a portion of the total population by imputing to nonresponding households and housing units the same number of occupants who live in certain occupied households.

Whether by the use of imputation apportionment numbers are enhanced by the use of a "statistical process" in order to arrive at "adjusted" numbers, as described by the Census Bureau; or whether the number is adjusted by a "statistical estimate" as described by Justice Breyer in order to "fill in

gaps;" or whether "estimation techniques" are utilized to enhance population figures in the manner suggested by Justice Scalia in *House of Representatives*; [3] or whether the number is enhanced so as to "*fill in missing data* on the *assumption* that similar types of dwellings in the same geographic area will have similar characteristics" as is described by the majority in this case;—the result is the same. All of these examples describe a form of sampling known as imputation in which statistical estimates are used to arrive at population apportionment. This crosses the line and violates § 195 of the Census Act. Accordingly, the use of imputation should be struck down as a prohibited form or subset of sampling under the reasoning of *House of Representatives*.

Manifestly, "sampling" and "imputation" in substance and effect are indistinguishable because both use a portion of the population to infer information concerning segments of the population in order to arrive at final figures concerning the population as a whole.

---

[3] Justice Scalia, joined by three other justices in *House of Representatives*, warned of the use of "estimation techniques" in arriving at population/apportionment counts:

> To give Congress the power, under the guise of regulating the "Manner" by which the census is taken, to select among various estimation techniques having credible (or even incredible) "expert" support is to give the party controlling Congress the power to distort representation in its favor. In other words, genuine enumeration may not be the most accurate way of determining population, but it may be the most accurate way of determining population with minimal possibility of partisan manipulation. The prospect of this Court's reviewing estimation techniques in the future, to determine which of them so obviously creates a distortion that it cannot be allowed, is not a happy one.

525 U.S. at 348-49. Justice Scalia's comments were not directed specifically to § 195 of the Census Act, but they are instructive because the very mischief he seeks to avoid in eschewing "estimation techniques" could constitute violation of the statute.

For the reasons aforesaid, I respectfully dissent.

DATED this 30th day of October, 2001.

/s/ J. Thomas Greene
J. THOMAS GREENE
Senior United States District Judge

APPENDIX B

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF UTAH, CENTRAL DIVISION

Case No. 2:01-CV-292G

STATE OF UTAH, *et al.*,
Plaintiffs,

v.

EVANS, *et al.*,
Defendants.

NOTICE OF APPEAL

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The plaintiffs hereby appeal to the United States Supreme Court from the final judgment entered by the three-judge district court on November 5, 2001, dismissing the complaint in this action. This appeal is taken pursuant to 28 U.S.C. §§ 1253, 2101(b), and Pub. L. No. 105-119, § 209(e)(1), 111 Stat. 2482 (codified at 13 U.S.C. § 141 Note).

RESPECTFULLY SUBMITTED this 5th day of November, 2001.

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APPENDIX C

CONSTITUTIONAL PROVISIONS

U.S. Const. art. I, § 2, cl. 3

Representatives and direct Taxes shall be apportioned among the several States which may be included within this Union, according to their respective Numbers, which shall be determined by adding to the whole Number of free Persons, including those bound to Service for a Term of Years, and excluding Indians not taxed, three fifths of all other Persons. The actual Enumeration shall be made within three Years after the first Meeting of the Congress of the United States, and within every subsequent Term of ten Years, in such Manner as they shall by Law direct. The Number of Representatives shall not exceed one for every thirty Thousand, but each State shall have at Least one Representative; and until such enumeration shall be made, the State of New Hampshire shall be entitled to chuse three, Massachusetts eight, Rhode-Island and Providence Plantations one, Connecticut five, New York six, New Jersey four, Pennsylvania eight, Delaware one, Maryland six, Virginia ten, North Carolina five, South Carolina five, and Georgia three.

U. S. Const. amend. XIV, §§ 1-2

Section 1. All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside. No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws.

Section 2. Representatives shall be apportioned among the several States according to their respective numbers, counting the whole number of persons in each State, excluding Indians

not taxed. But when the right to vote at any election for the choice of electors for President and Vice President of the United States, Representatives in Congress, the Executive and Judicial officers of a State, or the members of the Legislature thereof, is denied to any of the male inhabitants of such State, being twenty-one years of age, and citizens of the United States, or in any way abridged, except for participation in rebellion, or other crime, the basis of representation therein shall be reduced in the proportion which the number of such male citizens shall bear to the whole number of male citizens twenty-one years of age in such State.

APPENDIX D

STATUTES

13 U.S.C. § 141. Population and other census information

(a) The Secretary shall, in the year 1980 and every 10 years thereafter, take a decennial census of population as of the first day of April of such year, which date shall be known as the "decennial census date", in such form and content as he may determine, including the use of sampling procedures and special surveys. In connection with any such census, the Secretary is authorized to obtain such other census information as necessary.

* * * *

(Aug. 31, 1954, c. 1158, 68 Stat. 1019; Aug. 28, 1957, Pub.L. 85-207, § 9, 71 Stat. 483; Dec. 23, 1975, Pub.L. 94-171, §§ 1, 2(a), 89 Stat. 1023, 1024; Oct. 17, 1976, Pub.L. 94-521, § 7(a), 90 Stat. 2461.)

13 U.S.C. § 195. Use of sampling

Except for the determination of population for purposes of apportionment of Representatives in Congress among the several States, the Secretary shall, if he considers it feasible, authorize the use of the statistical method known as "sampling" in carrying out the provisions of this title.

(Added Pub.L. 85-207, § 14, Aug. 28, 1957, 71 Stat. 484, and amended Pub.L. 94-521, § 10, Oct. 17, 1976, 90 Stat. 2464.)

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No. 01-714

In the Supreme Court of the United States

STATE OF UTAH, ET AL., APPELLANTS

v.

DONALD L. EVANS, SECRETARY OF COMMERCE, ET AL.

ON APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF UTAH

MOTION TO AFFIRM

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QUESTIONS PRESENTED

In the 2000 census, the Census Bureau used a process known as "imputation," under which the number of residents in a housing unit whose occupancy could not otherwise be determined was based on the known number of residents of a similar nearby unit. The questions presented are as follows:

1. Whether the use of imputation violated 13 U.S.C. 195, which prohibits "the use of the statistical method known as 'sampling'" in determining the population "for purposes of apportionment of Representatives in Congress among the several States."

2. Whether the use of imputation violated the Census Clause of the Constitution, Art. I, § 2, Cl. 3.

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In the Supreme Court of the United States

No. 01-714

STATE OF UTAH, ET AL., APPELLANTS

v.

DONALD L. EVANS, SECRETARY OF COMMERCE, ET AL.

ON APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF UTAH

MOTION TO AFFIRM

Pursuant to Rule 18.6 of the Rules of this Court, the Solicitor General, on behalf of the Secretary of Commerce and the Director of the Bureau of the Census, respectfully moves that the judgment of the district court be affirmed.

OPINION BELOW

The opinion of the three-judge district court (J.S. App. 1a-34a) is not yet reported.

JURISDICTION

The judgment of the district court was entered on November 5, 2001. The notice of appeal (J.S. App. 35a-36a) was filed on November 5, 2001. The jurisdictional statement was filed on November 20, 2001. The jurisdiction of this Court is invoked under 28 U.S.C. 1253 and under Section 209(e)(1) of the Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Act, 1998, Pub. L. No. 105-119, 111 Stat. 2482.

STATEMENT

1. The Constitution requires a decennial census for the purpose of determining the number of Representatives to which each State is entitled. Article I, Section 2, Clause 3 provides that "Representatives * * * shall be apportioned among the several States * * * according to their respective Numbers" (the Apportionment Clause). It then provides that "[t]he actual Enumeration shall be made within three Years after the first Meeting of the Congress of the United States, and within every subsequent Term of ten Years, in such Manner as they shall by Law direct" (the Census Clause). *Ibid.* See also U.S. Const. Amend. XIV, § 2 ("Representatives shall be apportioned among the several States according to their respective numbers, counting the whole number of persons in each State, excluding Indians not taxed.").

2. The Census Act provides that the Secretary of Commerce "shall, in the year 1980 and every 10 years thereafter, take a decennial census of population as of the first day of April of such year." 13 U.S.C. 141(a). The "tabulation of total population by States" is to be completed and reported by the Secretary to the President within nine months after the April 1 census date. 13 U.S.C. 141(b). Within one week after the beginning of the first Session of Congress following the census, the President must transmit to Congress a statement showing the "whole number of persons in each State * * * and the number of Representatives to which each State would be entitled" under the statutorily prescribed "equal proportions" formula for apportioning Representatives. 2 U.S.C. 2a(a); see *United States Dep't of Commerce* v. *Montana*, 503 U.S. 442, 451-455 (1992). Under the apportionment law, "[e]ach State shall be entitled * * * to the number of Representatives shown in the statement" submitted by the President. 2 U.S.C. 2a(b). Within 15 days

after receiving that statement, the Clerk of the House must "send to the executive of each State a certificate of the number of Representatives to which such State is entitled." *Ibid.*

The Census Act authorizes the Secretary to conduct the decennial census "in such form and content as he may determine, including the use of sampling procedures and special surveys." 13 U.S.C. 141(a). The Bureau of the Census and its Director assist the Secretary in the performance of his duties under the Census Act. See 13 U.S.C. 2, 21. The Act further states that "[e]xcept for the determination of population for purposes of apportionment of Representatives in Congress among the several States, the Secretary shall, if he considers it feasible, authorize the use of the statistical method known as 'sampling' in carrying out the provisions of this title." 13 U.S.C. 195. Section 195 was enacted in 1957, at the request of the Secretary of Commerce, and was amended to its present form in 1976. See *Department of Commerce* v. *United States House of Representatives*, 525 U.S. 316, 336, 338-339 (1999).

3. "In the 2000 census, the Census Bureau processed data for over 120 million households, including over 147 million paper questionnaires and 1.5 billion pages of printed material." J.S. App. 25a. The Bureau's efforts "to obtain a completed census questionnaire from every housing unit for the 2000 census" began with the development of a Decennial Master Address File, "which contained the mailing address, street address, and census block location of every housing unit in the United States." *Id.* at 6a. The Bureau sought information from residents of each address through a number of techniques designed to maximize the response rate, including mailed, hand-delivered, and enumerator-prepared questionnaires, complemented by community outreach. *Id.* at 7a; A.R. C00198-C00201, C00206-C00207. The Census Bureau then undertook extensive efforts to obtain missing

data from nonresponding households. Enumerators performed rechecks and telephone interviews, making up to six attempts to obtain interviews. If the relevant information could not be obtained despite these steps, the Bureau sought the information from proxy respondents, such as neighbors, landlords and postal workers. See Declaration of Howard Hogan (Hogan Decl.) paras. 73-74; see also A.R. C00819-C00841.

The Census Bureau's intensive efforts to obtain information directly from an individual at each address (or, if necessary, an individual familiar with that address) were not always successful. When the Bureau was otherwise unable to obtain information regarding the number of persons who resided in a particular housing unit on the census date, it employed "imputation," a widely-accepted procedure used to account for missing, discrepant, or improperly processed data. See Hogan Decl. paras. 8-9, 16, 31. In the 1940 and 1950 censuses, the Bureau used imputation to account for missing demographic data but not to determine the population counts used in apportioning Representatives among the States. J.S. App. 8a; Hogan Decl. para. 39. "Count imputation"—*i.e.* imputation used in the determination of official population figures—has been employed in every census starting in 1960. See J.S. App. 8a; Hogan Decl. paras. 39, 41, 43, 46, 52, 58; A.R. C00376-C00380, C00394-C00395, C00418-C00425, C00431, C01388-C01389. In the 2000 census, count imputation was used to determine the status, occupancy, and, if occupied, number of residents for a unit included in the Master Address File where any of those data points was unknown. J.S. App. 7a & 8a n.5. Count imputation was used only after the Bureau had unsuccessfully attempted to obtain the relevant information through the steps described above. *Id.* at 7a.

The basic count-imputation method used by the Census Bureau since the 1960 census has been the "hot-deck"

method, "in which imputed information comes from the same census." Hogan Decl. para. 16. ("'Cold-deck' imputation uses information from a prior census or some other outside source." *Ibid.*) In the form of hot-deck imputation used in the 2000 census, housing unit and other data were stored sequentially in a computer file as they were processed. When data for a particular unit were incomplete, data from the most recently processed housing unit with similar characteristics were imputed to it. J.S. App. 8a; see Hogan Decl. para. 17.

The Census Bureau has made Congress aware of its use of imputation. After each census, the Bureau has published procedural histories, analyses, and reports that clearly describe the use of imputation. See, *e.g.*, A.R. C00145, C00361, C00379, C00394-C00395, C00418, C00425. The Bureau has also provided statements and testimony to congressional committees regarding its use of imputation. See, *e.g.*, A.R. C00668, C00677-C00679, C00688, C01287. Following the 1980 census, the State of Indiana sued the Census Bureau because, as a result of count imputation, a seat in the House of Representatives shifted from Indiana to Florida. See *Orr* v. *Baldrige*, No. IP-81-604-C (S.D. Ind. July 1, 1985). In that suit, the parties ultimately stipulated, and the court agreed, that imputation was not sampling. See J.S. App. 19a. The court in *Orr* explained:

> Sampling is the selection of a subset of units from a larger population in such a way that each unit of the population has a known chance of selection. Sampling is used where a scientifically selected set of units can be used to represent the entire population from which they are drawn. Inferences about the entire population can be based on sample results. Imputation, on the other hand, is a procedure for determining a plausible value for missing data. Imputation is used in both sample surveys

and censuses with the goal of achieving as complete as possible an enumeration of the sampled or population units.

Id. at 19a-20a (quoting *Orr*).

4. In 1991, Congress directed the Secretary of Commerce to contract with the National Academy of Sciences to study means to improve the accuracy of the census, including the use of sampling. Decennial Census Improvement Act of 1991, Pub. L. No. 102-135, § 2, 105 Stat. 635. The Academy recommended the use of sampling, and the Census Bureau ultimately adopted a plan for the 2000 census that included statistical sampling programs. See A.R. C00132; Hogan Decl. para. 61. Various parties filed suit to challenge that aspect of the Bureau's plan, arguing that the use of sampling in determining the population figures for the apportionment of Representatives among the States would violate 13 U.S.C. 195, as well as the Census Clause of the Constitution. In *House of Representatives*, the Court held that Section 195 "prohibits the proposed uses of statistical sampling in calculating the population for purposes of apportionment." 525 U.S. at 343. In light of its disposition of the plaintiffs' statutory claim, the Court found it unnecessary to resolve the constitutional question. *Id.* at 343-344.[1]

5. As in the 1960 through 1990 censuses, the Bureau's plan for the 2000 census included count imputation to address data processing problems. Hogan Decl. para. 58. The

[1] Four Members of the Court expressed the view that "a strong case can be made that an apportionment census conducted with the use of 'sampling techniques' is not the 'actual Enumeration' that the Constitution requires." 525 U.S. at 349 (Scalia, J., concurring in part). Those Justices invoked the doctrine of constitutional doubt in support of the Court's holding that Section 195 bars the use of sampling for purposes of determining the apportionment figures. *Id.* at 344-349. Four other Members of the Court considered and rejected the plaintiffs' constitutional challenge. *Id.* at 362-364 (Stevens, J., dissenting).

Bureau's intention to use hot-deck imputation was unaffected by the Court's decision in *House of Representatives*. Before the commencement of the 2000 census, the Bureau presented all details of its plan for the census, including its intention to use imputation, to the congressional committees charged with overseeing the census, the General Accounting Office, the Census Monitoring Board, the Inspector General of the Department of Commerce, and numerous advisory committees. Hogan Decl. para. 65; see, *e.g.*, A.R. C01519, C01731, C01752, C01805, C01818-C01819. The Bureau conducted the census in accordance with the plans presented to Congress. A total of approximately 0.4% of the population was added to the apportionment count through imputation. J.S. App. 7a.

6. If the Bureau had not employed imputation—*i.e.*, if it had attributed zero residents to each of the housing units for which imputed figures were used—Utah would have been apportioned one additional (and North Carolina one fewer) Representative. J.S. App. 9a. The State of Utah and several elected Utah officials (appellants in this Court) brought suit, seeking to invalidate the use of imputation and to have one Representative reapportioned from North Carolina to Utah. Appellants alleged that the Bureau's use of imputation violated the Administrative Procedure Act (APA), the Census Act, and the Census Clause of the Constitution. *Ibid.* The State of North Carolina and several of its elected officials intervened as defendants. J.S. App. 2a. A three-judge district court convened under 28 U.S.C. 2284 granted the defendants' motion for summary judgment. J.S. App. 1a-34a.[2]

[2] Appellants place extensive reliance (see, *e.g.*, J.S. 3) on a document captioned "Plaintiffs' Statement of Undisputed Facts" (SUF), which they filed in the district court. That document does not, however, set forth facts that are actually undisputed. Rather, it contains appellants' charac-

a. Relying on this Court's decision in *Franklin* v. *Massachusetts*, 505 U.S. 788 (1992), the district court held that appellants' Census Act and constitutional claims were justiciable. J.S. App. 9a-12a. Based on *Franklin* and on *Utah* v. *Evans*, 143 F. Supp. 2d 1290 (D. Utah 2001) (*Evans I*), aff'd, No. 01-283 (Nov. 26, 2001), however, the court held that appellants' APA claim was not justiciable. J.S. App. 12a-15a.[3]

b. The district court held that 13 U.S.C. 195 does not prohibit the use of hot-deck imputation in determining population figures for purposes of apportioning Representatives among the States. J.S. App. 16a-24a. The court observed that "section 195 does not preclude the Census Bureau from the use of every type of statistical methodology in arriving at apportionment figures during a decennial census. Instead, it prohibits only 'the use of the statistical method known as "sampling."'" *Id.* at 18a. The district court "conclude[d] that statistical sampling and imputation are separate statistical methodologies and that they were viewed as such at the time of the enactment of § 195." *Ibid.* The court explained:

> Sampling is the technique of determining the traits of the entire population by collecting and analyzing data from a representative segment of that population. In hot deck imputation, on the other hand, there is no representative sample from which to infer the characteristics of the larger population. Instead, a single, fully enumerated

terization and analysis of the evidence contained in the record; the federal appellees disputed appellants' recitation of the facts at considerable length. See Consolidated Memorandum in Support of Defendants' Motion to Dismiss or, in the Alternative, their Cross-Motion for Summary Judgment, and in Opposition to Plaintiffs' Motion for Summary Judgment at 5-17 (filed Aug. 14, 2001).

[3] Appellants do not press their APA claim in this Court.

> housing unit is used to draw conclusions about a neighboring housing unit for which data is missing. That is, imputation is used to fill in missing data on the assumption that similar types of dwellings in the same geographic area will have similar characteristics.

Id. at 20a.

c. The district court held that the Bureau's use of hot-deck imputation in determining the population figures employed in apportioning Representatives among the States did not violate the Census Clause of the Constitution. J.S. App. 24a-27a. The court observed that the text of the Census Clause, which provides that the decennial census shall take place "in such Manner as [Congress] shall by law direct," Art. I, § 2, Cl. 3, "vests Congress with virtually unlimited discretion in conducting the decennial actual Enumeration." J.S. App. 24a. Given "the enormity and complexity of" the decennial census, the court found it "inconceivable that the Constitution prohibits the use of statistical methodologies to account for missing and incomplete data." *Id.* at 25a. Because gaps in the recorded data are inevitable, the court explained, "some type of imputation must take place by practical necessity, whether it is the imputation of statistically plausible values for the missing data or the imputation of a zero." *Ibid.* The court stated that "[t]he latter approach appears clearly inconsistent with the constitutional imperative of an actual enumeration." *Ibid.*

The district court rejected appellants' contention that the phrase "actual Enumeration" in the Census Clause precludes hot-deck imputation or requires the use of a particular census methodology. The court found that "[t]he constitutional requirement of an enumerative census was simply to distinguish that process from the conjectural apportionment of the first Congress" set forth in Article I, Section 2, Clause

3 of the Constitution itself. J.S. App. 26a. The court also noted that "the phrase 'actual enumeration[]' * * * was added by the Committee of Style and Arrangement, a committee which did not operate to alter the substance of any of the resolutions passed by the Constitutional Convention." *Ibid.*

d. Senior District Judge Greene dissented. J.S. App. 28a-34a. Judge Greene would have held that the Bureau's use of imputation violated Section 195's prohibition on the use of "sampling" in the determination of population figures used to apportion 'Representatives among the States. *Id.* at 28a. He was of the view that "'sampling' and 'imputation' in substance and effect are indistinguishable because both use a portion of the population to infer information concerning segments of the population in order to arrive at final figures concerning the population as a whole." *Id.* at 33a.

ARGUMENT

I. THE CENSUS BUREAU'S USE OF IMPUTATION IN DETERMINING THE POPULATION FOR PURPOSES OF APPORTIONING REPRESENTATIVES AMONG THE STATES DOES NOT VIOLATE THE CENSUS ACT

A. For purposes of determining the apportionment of Representatives among the States, 13 U.S.C. 195 prohibits "the use of the statistical method known as 'sampling.'" The statutory language clearly expresses Congress's intent to distinguish "sampling" from other "statistical method[s]" and to prohibit only the former. See J.S. App. 18a (district court "begin[s] by noting that section 195 does not preclude the Census Bureau from the use of every type of statistical methodology in arriving at apportionment figures during a decennial census"). In addition, Section 195's reference to "the statistical method *known as 'sampling'*" (emphasis added) reflects Congress's understanding, at the time of the

provision's enactment in 1957, that the word "sampling" was a term of art with an established meaning.

Among statisticians, the term "sampling" has a well-accepted meaning and refers to a strategy for *collecting* data. See Hogan Decl. paras. 19, 21-23; Declaration of Joseph Waksberg (Waksberg Decl.) paras. 7-9. Imputation, by contrast, is a method of *processing* data that have already been collected. *Ibid.* Thus, "sampling and imputation 'are two completely different procedures, based upon totally distinct principles and serving equally distinct purposes.'" Hogan Decl. para. 23 (quoting A.R. C00570).[4]

Indeed, "the common usage by survey statisticians of such expressions as sampling * * * does not refer to imputation for missing data, even when the method of imputation involves some auxiliary sample operation (which was not the case in the 2000 census)." Waksberg Decl. para. 9. As a standard textbook published shortly before the enactment of 13 U.S.C. 195 explained, "[a] sampling method is a method of selecting a fraction of the population in a way that the selected sample represents the population." Hogan Decl. para. 27 n.5 (quoting P. Sukhatme, *Sampling Theory of Surveys With Applications* 9 (1954)). That is, moreover, the common dictionary meaning of "sampling." See *Webster's Third New International Dictionary* 2008 (1993) (def. 1.b) ("assessment of the quality or character of a whole by examination of a sample"); *ibid.* ("sample"; def. 2.a) ("a representative portion of a whole: a small segment or quantity taken as evidence of the quality or character of the entire group or lot"). By contrast, "[t]he hot-deck imputation used in the 2000 Census was a completely deterministic

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[4] Some statisticians do not consider hot-deck imputation to be a statistical methodology at all. See A.R. C01638 ("the hot deck consists of non-statistical procedures"); A.R. C01419 ("hot deck is * * * fundamentally non-statistical").

procedure which utilized data from a predetermined neighbor. There was no process of selecting from among a set of similar units, and, as a result, no sampling." Waksberg Decl. para. 6.

In the district court, appellants submitted the declarations of Drs. Lara J. Wolfson (Wolfson Decl.) and Donald B. Rubin (Rubin Decl.) in support of their claim that hot-deck imputation is a form of statistical sampling. Dr. Wolfson's declaration defined sampling as "the process of selecting a number of subjects [units] from all the subjects [units] in a particular group or universe." Wolfson Decl. para. 45 (internal quotation marks omitted). As Dr. Hogan explained, that definition is potentially over-inclusive because it "does not make clear that, in sampling, the process of selecting a sample is a deliberate and purposeful activity occurring during the design phase of a survey." Hogan Decl. para. 26. Dr. Hogan further explained:

> Without this understanding, Dr. Wolfson's definition is broad enough to cover situations that have nothing to do with sampling. And with this understanding, Dr. Wolfson's definition does not encompass imputation. * * * [I]mputation is not a mechanism for selecting units during the design phase of a census or sample survey, but rather is a means of dealing with missing data in the data processing stage.

Ibid. Dr. Rubin's declaration similarly defined sampling as "the process of obtaining data from a subset of a population (the subset is usually called the 'sample') from which estimates are made about characteristics of the entire population." Rubin Decl. para. 13. That definition "suffers from the same flaws as Dr. Wolfson's in that Dr. Rubin's definition does not incorporate the process of *deliberately* selecting a subset of the population *during the design phase of a survey*." Hogan Decl. para. 27.

Appellants contend (J.S. 14, 17) that their understanding of the term "sampling" is consistent with that of the Census Bureau, as reflected in the Bureau's August 1997 *Report to Congress* concerning the 2000 census. Appellants' argument rests on misleading partial quotations from that *Report*. The full passage from which those quotations are drawn is as follows:

> In our common experience, "sampling" occurs whenever the information on a portion of a population is used to infer information on the population as a whole. We use samples every day to characterize a larger group—for manufacturing quality checks, for medical tests, for determining air and water quality, and for conducting audits, to name a few. In laymen's terms, a "sample" is taken whenever the whole is represented by less than the whole. *Among professional statisticians, the term "sample" is reserved for instances when the selection of the smaller population is based on the methodology of their science.*

A.R. C00155 (emphasis added).

As the underscored language makes clear, the Bureau's understanding of "sampling" as a technical term of art reflected in the 1997 *Report to Congress* does not encompass hot-deck imputation. Under the hot-deck method, each individual "donor" unit is used because it bears a particular relation to a unit for which the Bureau is (for whatever reason) unable to obtain occupancy information. *After* the census has been completed, it is possible to identify the "donor" units used in the imputation process and to characterize the class of persons within those units, taken together, as a subset of the national population. But the class (*qua* class) of persons within the donor units is simply the fortuitous result of the Bureau's inability to obtain pertinent information regarding a set of other residences. The

class is not (in statistical terminology) a "sample" because it is not selected "based on the methodology of [statistical] science" (*Report to Congress*, A.R. C00155) and does not reflect a "deliberate and purposeful activity occurring during the design phase of a survey" (Hogan Decl. para. 26).

B. Appellants contend that hot-deck imputation is "substantively indistinguishable" from the sampling activities declared invalid by this Court in *House of Representatives*, and that it would therefore be "absurd" to permit the one but not the other. J.S. 15; see J.S. 15-17. That argument ignores the salient distinctions between hot-deck imputation and the sampling activities that were at issue in *House of Representatives*.

First, "the use of the statistical method known as 'sampling,'" 13 U.S.C. 195, involves a conscious decision by the Census Bureau to undertake more intensive data-collection efforts with respect to some housing units than it employs for other, comparable units. Under the Census Bureau's initial plan for the 2000 census, for example, the Bureau would have conducted nonresponse followup on only a portion of the housing units that did not respond to the mailed questionnaires. 525 U.S. at 324. As a result of the Court's decision in *House of Representatives*, the Bureau undertook followup efforts with respect to all nonresponding units. Hogan Decl. paras. 62, 63; A.R. C00278.

Indeed, the types of sampling at which Section 195 was originally directed, such as the "long form" used for "gathering supplemental, nonapportionment census information regarding population, unemployment, housing, and other matters collected in conjunction with the decennial census," *House of Representatives*, 525 U.S. at 337, involve efforts to collect data *only* from persons within the selected sample. The initial exemption of apportionment figures from the general authorization to use "sampling" thus reflected Congress's view that sampling should not be employed in the

apportionment context as a *substitute* for systematic efforts to contact all households directly. In *House of Representatives*, the Court held that the language of Section 195 admits of no distinction between that form of sampling and sampling used "as a 'supplement' to traditional enumeration methods." 525 U.S. at 342. There is, however, no basis for extending the holding in that case to imputation techniques that (a) fall outside the expert understanding of "sampling" as a technical term of art, and (b) are used only as a last resort after the failure of extensive direct efforts to collect occupancy information regarding a particular unit.

In the instant case, the housing units for which population data were imputed were not the subject of less intensive data collection efforts than the units from which the imputed data were drawn. To the contrary, those units for which imputed figures were ultimately used were subject to the *most* intensive data collection efforts, since the Bureau imputed figures to a particular unit only after the full range of measures successfully employed to obtain occupancy information from other units had proved unavailing. See Hogan Decl. paras. 73-74; J.S. App. 7a. Appellants do not contend that the Bureau could or should have made additional efforts to contact persons within the units at issue; their challenge to the Bureau's use of imputation has nothing to do with the manner in which data were collected. Instead, their claim is that, after all efforts to collect occupancy information regarding a particular housing unit proved unsuccessful, the Bureau should have simply attributed zero residents to the unit in question rather than imputing data from a comparable nearby unit. Congress's decision to prohibit the use of "sampling" in the determination of apportionment figures has little bearing on the appropriate choice between those two alternatives.

Second, precisely because "the process of selecting a sample is a deliberate and purposeful activity occurring

during the design phase of a survey," Hogan Decl. para. 26, the Bureau's use of sampling in determining the population for purposes of apportioning Representatives among the States might give rise to the appearance of political manipulation. In hot-deck imputation, by contrast, neither the number nor the identity of the "donor" or "donee" units is pre-selected by the Bureau. Indeed, if the Bureau's other data collection efforts were uniformly successful, imputation would not be used at all. Because the imputation of figures to a particular unit is simply an *ex post* response to a gap in the collected data, Congress might reasonably conclude that it is unlikely to be used in a manipulative fashion.

Appellants contend that if the hot-deck method is permitted, "the Bureau could predictably expand its use of hot-deck imputation to estimate increasingly larger portions of the population" by "reducing the resources it dedicates to the non-response follow-up process." J.S. 15, 16. But whether or not the Bureau uses hot-deck imputation at the data-processing stage, it has very substantial latitude to determine what followup data collection efforts should be employed for housing units that fail to respond to the initial questionnaire. If the Census Bureau attributed zero occupants to each unit for which its data collection efforts were unsuccessful, rather than imputing occupancy information from a comparable nearby unit, changes in the Bureau's nonresponse followup procedures could be expected to have much more substantial effects on the final population counts. The Bureau's use of hot-deck imputation therefore mitigates rather than increases any danger that might be thought to exist of political manipulation of the data collection process.

Section 195 should be construed, moreover, in light of the Census Act as a whole, which confers extremely broad discretion on the Secretary. See 13 U.S.C. 141(a) (Secretary may conduct the decennial census "in such form and content as he may determine."); *Wisconsin* v. *City of New York*, 517

U.S. 1, 19 (1996) (noting that in Section 141(a), "Congress has delegated its broad authority over the census to the Secretary"). Section 195's ban on sampling in the apportionment context does not reflect a systematic congressional effort to micromanage the census; it is instead a narrow exception, confined to a particular statistical methodology, to a general rule of broad deference to the Secretary's judgment and expertise. Because hot-deck imputation is not (and was not in 1957) regarded within the statistical community as a form of "sampling," the determination whether imputation shares practical shortcomings similar to those of sampling is entrusted to the Secretary, not to the courts.[5]

C. In holding that 13 U.S.C. 195 bars the use of sampling in determining the apportionment counts, the Court in *House of Representatives* relied in part on prior Census Bureau pronouncements construing the statute to impose such a prohibition. See 525 U.S. at 340. By contrast, the Bureau has used count imputation in every census since 1960 and has expressed no doubt as to its legality. Testifying at a 1991 congressional oversight hearing, for example, Director of the Census Bureau Barbara Everitt Bryant included imputation in her description of longstanding decennial census procedures:

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[5] Plaintiffs also contend (J.S. 16 n.4) that Congress could not have intended to ban sampling while allowing imputation because sampling is always more reliable than imputation. For the purposes of determining whether hot-deck imputation violates the Census Act, its relative accuracy is irrelevant. The only relevant question is whether imputation is a form of "the statistical method known as 'sampling.'" 13 U.S.C. 195. In any event, appellants' premise is incorrect: imputation can be more accurate than sampling because housing units in geographic proximity tend to be similar in size. See Hogan Decl. para. 17; A.R. C00534-C00546, C00601-C00615, C00634-C00650, C01418, C01422; see also Hogan Decl. para. 23 ("sampling and imputation are not competitive, nor is one methodology superior to the other").

> After all efforts are made through mail, personal interview, repeat visits to each housing unit, talking to neighbors, observation, coverage improvement operations, and so on, to identify and complete the enumeration for every housing unit, we still have a certain level of unfinished work. That is, our address control file contains housing units that have been identified by our enumerators as occupied but for which they were not able to collect population information. We also have housing units where it is not known whether the unit is occupied or vacant. *In either of these cases, for the last several censuses, we have determined that the counts are improved if we use a procedure to impute persons for these units, rather than just assume there are no persons in these units.*

A.R. C01287 (emphasis added). Similarly, in a published report announcing the Secretary's decision not to employ a statistical adjustment of the 1980 census figures, the Bureau explained that the "1980 census data covering the vast majority of Americans will result from a pure count in the full tradition and practice of actual enumeration." 45 Fed. Reg. 69,373 (1980) (A.R. C01220). The Bureau then described its conduct of the 1980 census, including its use of count imputation. *Ibid.* (explaining that, after several visits to a housing unit, "[i]f the number of occupants is unknown, an entire set of characteristics for a neighboring household is substituted"); see also A.R. C00679 (General Accounting Office official explains that "[d]ue to concerns about the legality of sampling, the Bureau did not use sampling techniques as part of the 1980 census but did impute about 762,000 persons into the census count.").

The Bureau's longstanding view that hot-deck imputation is not a form of "sampling" within the meaning of 13 U.S.C. 195 is entitled to judicial deference under the principles

announced in *Chevron U.S.A. Inc.* v. *Natural Resources Defense Council, Inc.*, 467 U.S. 837, 842-845 (1984). Compare *House of Representatives*, 525 U.S. at 340-341 (noting that the Commerce Department did not invoke principles of *Chevron* deference in that case in light of the agency's changing views on the question whether Section 195 prohibits the use of "sampling" in the determination of apportionment figures). Deference to the Bureau's reading of the disputed language is particularly appropriate for at least three reasons. First, because Congress utilized a term of art having an established meaning within the statistical community, interpretation of Section 195 rests in part on a technical judgment as to which the Bureau possesses substantial expertise. Second, deference to the Bureau on this question is consistent with the overall thrust of the Census Act, which vests the Secretary with very broad authority to conduct the decennial census "in such form and content as he may determine." 13 U.S.C. 141(a); see *City of New York*, 517 U.S. at 19; pp. 16-17, *supra*.

Third, deference to an agency's interpretation of disputed statutory language is especially appropriate where, as here, Congress has amended other provisions of the relevant law without disturbing the settled agency practice regarding the matter in question. See, *e.g.*, *United States* v. *Rutherford*, 442 U.S. 544, 554 n.10 (1979) ("[O]nce an agency's statutory construction has been fully brought to the attention of the public and the Congress, and the latter has not sought to alter that interpretation although it has amended the statute in other respects, then presumably the legislative intent has been correctly discerned.") (internal quotation marks omitted). In 1976, when Congress amended Section 195 without change pertinent to this issue, the Census Bureau had already used imputation for apportionment purposes in two decennial censuses. Congress again used imputation in 1980 (with the effect of shifting a seat in the House of

Representatives, leading to the *Orr* litigation) and in 1990, and it has repeatedly apprised Congress of that practice. see pp. 5-6, *supra*. Before the 2000 census, the Bureau presented its plan, including the use of imputation, to relevant congressional committees, the General Accounting Office, the Census Monitoring Board (created by Congress in 1998 to oversee the census), the Inspector General, and numerous advisory committees. See Hogan Decl. para. 65; A.R. C01519, C01731, C01752, C01805, C01818-C01819. But while Congress has amended the Census Act in other respects on a number of occasions, it has not restricted the Bureau's use of imputation.[6] That pattern of congressional acquiescence provides further evidence of the reasonableness of the Bureau's position.

II. THE CENSUS BUREAU'S USE OF IMPUTATION IS CONSISTENT WITH THE CENSUS CLAUSE OF THE CONSTITUTION

Appellants contend that the words "actual Enumeration" in the Census Clause were intended "to prescribe an individualized, person-by-person count of the population based on data from those with first-hand knowledge of the matters reported." J.S. 24; see J.S. 19-30. That claim lacks merit.

A. Appellants contend (J.S. 20) that "[t]here simply is no plausible understanding of the term 'actual Enumeration' that would permit the apportionment of Representatives to be calculated by reference to" imputation techniques. That argument is incorrect. *The Oxford English Dictionary* (*OED*) gives as its primary definition of the word "enu-

[6] See, *e.g.*, Pub. L. No. 105-252, 112 Stat. 1886 (1998); Pub. L. No. 104-13, 109 Stat. 163 (1995); Pub. L. No. 103-430, 108 Stat. 4393 (1994); Pub. L. No. 103-105, 107 Stat. 1030 (1993); Pub. L. No. 101-533, 104 Stat. 2344 (1990); Pub. L. No. 101-509, 104 Stat. 1339 (1990); Pub. L. No. 99-544, 100 Stat. 3046 (1986); Pub. L. No. 99-467, 100 Stat. 1192 (1986).

meration" "[t]he action of ascertaining the number of something; *esp.* the taking [of] a census of population; a census." 3 *OED* 227 (1933). The *OED* states that the word "enumeration" has been used in that manner since at least 1577. *Ibid.* The Bureau's use of hot-deck imputation indisputably constitutes a means "of ascertaining the number of" persons within each State.

The structure of Article I, Section 2, Clause 3, reinforces the conclusion that the Framers did not intend to prescribe a particular census methodology. After first stating that "Representatives * * * shall be apportioned among the several States * * * according to their respective Numbers," the Clause provides that "[t]he actual Enumeration shall be made within three Years after the first Meeting of the Congress of the United States, and within every subsequent Term of ten Years, in such Manner as [Congress] shall by Law direct." The Framers' use of the definite article ("*[t]he* actual Enumeration") presumes that the requirement of an "Enumeration" is implicit in what has come before—*i.e.*, in the requirement that the apportionment of Representatives be based upon the States' "respective Numbers"—rather than a further constraint on the discretion of Congress (such as a specification of the means by which those numbers are to be determined). Thus, the first sentence of Article I, Section 2, Clause 3 states the constitutional principle that apportionment of Representatives will be based on population, and the first portion of the next sentence then specifies when the ascertainment of population will "actual[ly]" occur. The *means* by which the "Enumeration" will be "made" are addressed not by that first portion of the sentence (including the words "actual Enumeration"), but by the second portion, which simply provides that the task will be accomplished "in such Manner as [Congress] shall by Law direct." Those are words of authorization, not limitation.

Furthermore, from the time of the First Congress, the conduct of the decennial census has frequently involved techniques designed to obtain and use reliable information concerning the *aggregate* number of persons residing at particular locations, rather than an attempt by federal personnel to conduct "an individualized, person-by-person count of the population." J.S. 24. The Act providing for the 1790 decennial census stated that each "assistant" was to return to the appropriate United States marshal a schedule identifying all heads of households within the assistant's district, together with the number of persons in each household falling within each of five categories (free white males of sixteen years and upwards, free white males under sixteen years, free white females, all other free persons, and slaves). Act of Mar. 1, 1790, ch. II, § 1, 1 Stat. 101-102. Nothing in the Act required the marshals or their assistants to report or record individual names. Nor did the Act specify the manner in which the relevant information was to be obtained, though it did require "each and every person more than sixteen years of age" to furnish accurate information if questioned by an assistant. § 6, 1 Stat. 103. Indeed, it was not until the seventh decennial census in 1850 that the government began to record the names of individuals other than heads of households. See S. Doc. No. 194, 56th Cong., 1st Sess. 47 (1900).

B. In *Wesberry* v. *Sanders*, 376 U.S. 1, 10-14 (1964), this Court summarized the debates at the Constitutional Convention concerning the basis upon which the representation of the States in Congress would be determined. Delegates from the larger States argued that each State's representation should be determined on the basis of population; those from the smaller States contended that each State should have an equal number of Representatives. *Id.* at 10-11. The dispute was finally resolved by means of the Great Compromise, under which representation in the Senate was

divided evenly among the States, while the Members of the House were "apportioned among the several States . . . according to their respective Numbers." *Id.* at 13 (quoting U.S. Const. Art. I, § 2, Cl. 3). The Court in *Wesberry* further observed that "[t]he Constitution embodied Edmund Randolph's proposal for a periodic census to ensure 'fair representation of the people,' an idea endorsed by Madison as assuring that 'numbers of inhabitants' should always be the measure of representation in the House of Representatives." *Id.* at 13-14 (footnote omitted).

The debates at the Constitutional Convention contain no discussion of the specific methodology that would be used to ascertain the "respective Numbers" of "the several States." The drafting history of the Census Clause strongly indicates, however, that the Framers did not regard the word "Enumeration" as denoting any particular means of taking the census. Edmund Randolph made the first specific proposal, moving that the Convention adopt a provision stating "that in order to ascertain the alterations in the population & wealth of the several States the Legislature should be required to cause a census, and estimate to be taken within one year after its first meeting; and every ____ years thereafter—and that the Legisl[ature] arrange the Representation accordingly." 1 M. Farrand, *The Records of the Federal Convention of 1787*, at 570-571 (1966 ed.). Subsequent versions of that provision consistently used the word "census"; none used the word "enumeration." See *id.* at 575, 594, 595, 600.

The Committee of Detail subsequently prepared a draft Constitution incorporating the resolutions passed by the Convention. Article IV, Section 4 of the draft Constitution directed Congress to "regulate the number of representatives by the number of inhabitants, according to the provisions herein after made, at the rate of one for every

forty thousand." 2 Farrand at 178. Article VII, Section 3, provided:

> The proportions of direct taxation shall be regulated by the whole number of white and other free citizens and inhabitants, of every age, sex and condition, including those bound to servitude for a term of years, and three fifths of all other persons not comprehended in the foregoing description, (except Indians not paying taxes) *which number shall, within six years after the first meeting of the Legislature, and within the term of every ten years afterwards, be taken in such manner as the said Legislature shall direct.*

Id. at 182-183 (emphasis added). The effect of those provisions, read together, was that Congress was directed to "regulate the number of representatives by the number of inhabitants, * * * which number shall * * * be taken in such manner as [Congress] shall direct." The relevant provisions of the Committee of Detail's draft imposed no restriction on the "manner" in which the "number" of each State's inhabitants would be "taken."

After receiving the Committee of Detail's report, the Convention devoted approximately one month to section-by-section analysis of the draft Constitution. See 2 Farrand at 190-564. The provisions set forth above were amended in minor respects not relevant to the question presented here. See *id.* at 219-223, 339, 350-351, 357. Those provisions were approved by the Convention in their amended form, and the revised draft Constitution was referred to the Committee of Style and Arrangement. See *id.* at 565, 566, 571. The phrase "actual Enumeration" first appeared in a new draft Constitution submitted to the Convention by the Committee of Style. See *id.* at 590. No delegate suggested that the Committee of Style's use of the word "Enumeration" was intended to affect the scope of Congress's authority to

conduct the census in the manner that it saw fit. Rather, the drafting history of the relevant constitutional provisions strongly indicates that the Census Clause as finally adopted, like the earlier version on which it was patterned, was simply intended to direct Congress to determine the "Numbers" of persons within the "several States" every ten years.

This Court has recognized that "the Committee of Style had no authority from the Convention to alter the meaning" of the draft Constitution submitted for its review and revision. *Nixon* v. *United States*, 506 U.S. 224, 231 (1993); accord *Powell* v. *McCormack*, 395 U.S. 486, 538-539 (1969). The limited nature of the Committee of Style's mandate does not mean that the Committee's changes "can be disregarded." J.S. 21. In interpreting ambiguous provisions of the Constitution in its final form, however, the Court "must presume that the Committee's reorganization or rephrasing accurately captured what the Framers meant in their unadorned language"—*i.e.*, "that the Committee did its job." *Nixon*, 506 U.S. at 231. Insofar as the phrase "actual Enumeration" is susceptible of different meanings, it should therefore be construed in a manner that renders it consistent with the language previously approved by the Convention, which stated that the "number" of persons within each State "shall * * * be taken in such manner as the said Legislature shall direct." 2 Farrand at 183, 571; cf. 3 *OED* 227 (explaining that the word "enumeration" has been used since at least 1577 to mean "[t]he action of ascertaining the number of something"); pp. 20-21, *supra*.

C. The requirement that a new "Enumeration" be conducted within every ten-year period was intended to ensure that the apportionment of Representatives would continue to correspond to the "respective Numbers" of the "several States." The delegates to the Convention anticipated that westward migration would substantially alter the distribution of the country's population. They wished to avoid

replicating the English practice of "rotten boroughs" that resulted from the legislature's refusal to reapportion itself in light of population shifts. See *Wesberry*, 376 U.S. at 14; 1 Farrand at 584 (James Madison states that "[t]he power [in England] had long been in the hands of the boroughs, of the minority; who had opposed & defeated every reform which had been attempted."). The pertinent constitutional provisions thus operate together to further "our Constitution's plain objective of making equal representation for equal numbers of people the fundamental goal for the House of Representatives." *Wesberry*, 376 U.S. at 18; see also *Montana*, 503 U.S. at 463 (referring to "[t]he polestar of equal representation"); *Franklin*, 505 U.S. at 804, 806 ("constitutional goal of equal representation").

The decennial census can fulfill that purpose, however, only to the extent that it *accurately* determines the relative population shares of the individual States. To construe the phrase "actual Enumeration" to preclude techniques that would enhance the accuracy of the census would place the Census Clause at cross-purposes with the related constitutional provisions that the Clause was intended to implement. Appellants do not contest the district court's conclusion (see J.S. App. 25a) that the approach they advocate—*i.e.*, attributing zero residents to each housing unit in question, rather than imputing data from a comparable nearby unit—would reduce the accuracy of the apportionment counts. Appellants find that result unproblematic because "the Census Clause necessarily assumes that all persons who cannot be 'enumerated' will be *excluded* from the apportionment count." J.S. 23. It is surely true that the constitutional goal of "equal representation for equal numbers of people" is incapable of complete achievement in practice because (*inter alia*) the population figures derived from the decennial census "are inherently less than absolutely accurate." *Gaffney* v. *Cummings*, 412 U.S. 735, 745 (1973); cf. *City of*

New York, 517 U.S. at 6 ("Although each [decennial census] was designed with the goal of accomplishing an 'actual Enumeration' of the population, no census is recognized as having been wholly successful in achieving that goal."). Appellants' construction of the Census Clause, however, would exacerbate the inherent imperfections of the census by preventing Congress from authorizing and the Bureau from using an established methodology that enhances the accuracy of the count.

D. Appellants contend (J.S. 23-24) that a decision sustaining the Bureau's use of hot-deck imputation "would inevitably embroil the courts in an endless series of inquiries into which estimation procedures are sufficiently accurate to pass constitutional muster." Of course, litigation concerning the census would be nothing new: this Court has previously noted "the plethora of lawsuits that inevitably accompany each decennial census." *City of New York*, 517 U.S. at 19; see *Franklin* v. *Massachusetts*, 505 U.S. 788, 790 (1992) ("As one season follows another, the decennial census has again generated a number of reapportionment controversies."). The Court has minimized the disruptive effects of those lawsuits, not by establishing bright-line rules separating constitutional from unconstitutional census practices, but by respecting the Framers' decision to entrust such issues to Congress. See U.S. Const. Art. I, § 2, Cl. 3 ("actual Enumeration" is to be conducted "in such Manner as [Congress] shall by Law direct"); *City of New York*, 517 U.S. at 19 (recognizing that "[t]he text of the Constitution' vests Congress with virtually unlimited discretion in conducting the decennial 'actual Enumeration,'" and that "there is no basis for thinking that Congress' discretion is more limited than the text of the Constitution provides").

E. Appellants contend (J.S. 24-30) that the Framers were familiar with various means of estimating the population and deliberately adopted constitutional language that would

preclude such techniques. The historical evidence on which appellants rely, however, suggests at most that the Framers distinguished between systematic empirical efforts to count the population through actual inquiry of the people, and attempts to infer population figures from pre-existing data that had initially been compiled for other purposes. The historical materials cited by appellants simply do not speak to the question presented here: namely, what evidence is sufficiently probative to support an inference that a particular number of persons reside in an identified housing unit.

From 1790 to the present, the federal officials charged with conducting the census have always been permitted to rely on evidence other than their own firsthand observation of the persons included in the count. See p. 22, *supra*. In determining the likely number of residents within a given housing unit, data imputed from a comparable nearby unit are concededly less reliable than information provided by a household member or neighbor (hence the Bureau's decision to use imputation only as a last resort). But the responsibility for determining whether imputed data are sufficiently reliable to warrant their inclusion in the apportionment count, where the alternative is to attribute zero residents to the relevant unit, has been entrusted by the Constitution to Congress and by Congress to the Secretary. In each of the last five decennial censuses, the Secretary has concluded that imputation is the better of those two imperfect options. Appellants identify no historical evidence suggesting that the Framers anticipated the question presented here or sought to constrain Congress's discretion to define the type and quantum of evidence by which occupancy levels at particular housing units may be established.

CONCLUSION

The judgment of the district court should be affirmed.

Respectfully submitted.

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No. 01-714

In the

Supreme Court of the United States

STATE OF UTAH, *et al.*,

Appellants,

v.

DONALD L. EVANS, *et al.*,

Appellees,

and

STATE OF NORTH CAROLINA, *et al.*,

Intervenor-Appellees.

On Appeal from the United States District Court for the District of Utah

MOTION TO AFFIRM OR, IN THE ALTERNATIVE, TO DISMISS

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COUNTER-STATEMENT OF QUESTIONS PRESENTED

1. Whether the Court has the authority to reassign a Congressional Representative from North Carolina to Utah?

2. Whether the district court correctly held that the use of imputation in the 2000 apportionment count is not "the statistical method known as 'sampling'" prohibited by the Census Act?

3. Whether the district court correctly held that the Constitution vests Congress with virtually unlimited discretion to direct how an "actual enumeration" shall be conducted and does not prohibit the use of imputation to improve its accuracy?

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MOTION TO AFFIRM OR, IN THE ALTERNATIVE, TO DISMISS

Pursuant to Rule 18.6 of the Rules of the Supreme Court of the United States, Intervenor-Appellees State of North Carolina, *et al.*, move this Court to affirm summarily the Order[1] of the three-judge United States District Court for the District of Utah, dated November 1, 2001, or in the alternative to dismiss the appeal on the ground that the questions raised by the appeal are so insubstantial as to require no further argument.

COUNTER-STATEMENT OF THE CASE

A. STATEMENT OF THE CASE

This is the second action[2] brought by the State of Utah and her State and federal elected officials (hereinafter "Utah") seeking to change the outcome of the 2000 decennial Census so that Utah, instead of North Carolina, gains an additional seat in Congress. (Compl. ¶ 41) Utah sought a declaratory judgment "that the Census Bureau's decision to supplement the actual enumeration of the 2000 apportionment population with the statistical sampling estimates under the imputation methodology violates" the Census Clause, the Fourteenth Amendment, the Census Act, and the Administrative Procedure

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[1] The Order sought to be reviewed appears in the Appendix to Appellants' Jurisdictional Statement (hereinafter "J.S. App.") at 1a.

[2] The previous action was *Utah v. Evans*, 143 F. Supp. 2d 1290 (D. Utah 2001), *summarily aff'd*, 2001 U.S LEXIS 10615, 70 U.S.L.W. 3359 (Nov. 26, 2001).

Act.[3] (Compl. at 15) Utah also requested the court to enjoin the Bureau to recalculate the apportionment count by eliminating all persons included through imputation, and to transmit the new apportionment to the President. Utah then would have the President transmit the new apportionment to the Clerk of the House of Representatives, who would then be expected to transmit new certificates reflecting the revised apportionment to North Carolina and Utah.[4] *Id.*

Defendants are Donald L. Evans, Secretary of the Department of Commerce, and William G. Barron, Acting Director of the Census Bureau (hereinafter "Census Bureau" or "the Bureau"). The State of North Carolina and a number of her State and federal elected officials (hereinafter "North Carolina") intervened as defendants. The Census Bureau and North Carolina, maintaining that imputation methodology is not a form of sampling forbidden by § 195 and is not prohibited by the Census Clause or the Fourteenth Amendment, moved to dismiss or for summary judgment. North Carolina also contended that the court lacked jurisdiction to do more than grant prospective relief on the ground that Congressional action would be required to override the apportionment already certified.

The case was heard by a three-judge panel, which, with one judge dissenting, granted the Bureau's and North Carolina's motions for summary judgment. The district court, relying on *Franklin v. Massachusetts*, 505 U.S. 788 (1992), unanimously concluded that it had jurisdiction to grant relief.

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[3] The district court dismissed Utah's APA claim, and Utah has not pursued it on appeal.

[4] Neither the President nor the Clerk is a party to this action.

The district court's Census Act analysis began with *Wisconsin v. City of New York*, 517 U.S. 1, 19 1996), in which this Court held that "the Constitution ves Congress with virtually unlimited discretion in conducting the decennial 'actual Enumeration.'" In the Census Act, Congress delegated to the Secretary of Commerce the responsibility for taking a decennial census "in such form and content as he may determine." 13 U.S.C. § 141 (a) (2001). This Court further held in *Wisconsin* that "so long as the Secretary's conduct of the census is 'consistent with the constitutional language and the constitutional goal of equal representation,' it is within the limits of the Constitution." 517 U.S. at 19-20. Finally, this Court held that the Secretary's decisions "need bear only a reasonable relationship to the accomplishment of an actual enumeration of the population, keeping in mind the constitutional purpose of the census." *Id.* at 20; (J.S. App. at 16a-17a).

The district court held that whether imputation is a form of sampling forbidden by § 195 is a question of law. (J.S. App. at 18a) It noted "that section 195 does not preclude the Census Bureau from the use of every type of statistical methodology in arriving at apportionment figures during a decennial census. Instead, it prohibits only 'the use of the statistical method known as "sampling."' 13 U.S.C. § 195." *Id.* The court "conclude[d] that statistical sampling and imputation are separate statistical methodologies and that they were viewed as such at the time of the enactment of § 195." *Id.* The district court quoted with approval *Orr v. Baldrige*, No. IP-81-604-C (S.D. Ind. Feb. 7, 1982) (holding that imputation is not a form

of sampling). (J.S. 19a-20a.)[5] The court summarized its conclusion:

> Sampling is the technique of determining the traits of the entire population by collecting and analyzing data from a representative segment of that population. In hot deck imputation, on the other hand, there is no representative sample from which to infer the characteristics of the larger population. Instead, a single, fully enumerated housing unit is used to draw conclusions about a neighboring housing unit for which data is missing. That is, imputation is used to fill in missing data on the assumption that similar types of dwellings in the same geographic area will have similar characteristics.

(J.S. App. at 20a) Because imputation is not a form of sampling forbidden by § 195, Utah's reliance on *House of Representatives*, 525 U.S. 316 (1999), was misplaced. (J.S. App. at 21a)

Finally, the district court rejected Utah's claims under the Census Clause and the Fourteenth Amendment of the Constitution, noting that "the Constitution provides that the decennial censuses shall take place 'in such Manner as [Congress] shall by Law direct.' *Id.* at art. I, § 2, cl .3" (J.S. App. at 24a) Congress has delegated its authority to the Secretary of Commerce, whose discretion " 'need bear only a reasonable relationship to the accomplishment of an actual

[5] The Order in *Orr* is attached as Exhibit A to the Consolidated Memorandum in Support of Defendants' Motion to Dismiss or, in the Alternative, Their Cross-Motion for Summary Judgment and in Opposition to Plaintiffs' Motion for Summary Judgment (hereinafter "U.S. Mem.").

enumeration of the population, keeping in mind the constitutional purpose of the census' " *Id.* (quoting *Wisconsin*, 517 U.S. at 20). The court ruled the use of imputation to be "reasonably consistent with the accomplishment of an actual enumeration of the population." (J.S. App. at 25a) The court noted that the taking of the census is an enormous and complex undertaking. Agreeing with the *Orr* court that "some type of imputation must take place by practical necessity, whether it is the imputation of statistically plausible values for the missing data or the imputation of a zero," the district court concluded that "[t]he latter approach appears clearly inconsistent with the constitutional imperative of an actual enumeration." *Id.*

The court held that the "exalted meaning" that Utah would ascribe to the words " 'actual enumeration' fails when that term is considered in the context of the entire text of Article I and the history of the Census Clause." *Id.* The court stated, "the text of Article I, when read in conjunction with the proceedings of the Constitutional Convention, [makes clear] that the first apportionment of the House of Representatives was necessarily based on the grossest of estimates. *See* U.S. Const. art. I, § 2; 1 Max Farrand, Records of the Federal Convention of 1787, at 578-79 (1927) (explaining that delegates to the Constitutional Convention recognized that the first apportionment would be based on a 'conjectural ratio')." *Id.* at 25a-26a. The court concluded that "[t]he constitutional requirement of an enumerative census was simply to distinguish that process from the conjectural apportionment of the first Congress" and noted that "the phrase 'actual enumeration' . . . was added by the Committee of Style and Arrangement, a committee which did not operate to alter the

substance of any of the resolutions passed by the Constitutional Convention. *Cf. Nixon* [*v. United States*, 506 U.S. 224, 231 (1993).]" *Id.* at 26a. The court declared that it was "simply unwilling to adopt the draconian interpretation Plaintiffs would have us ascribe to 'actual enumeration'." *Id.*

Judge Greene concurred that the Census Act issue is justiciable (J.S. App. at 28a), but disagreed with the majority's conclusion that imputation is a statistical methodology separate and distinct from sampling. (J.S. App. at 30a)

Utah timely filed its notice of appeal on 5 November 2001. (J.S. App. at 35a-36a.)

B. STATEMENT OF FACTS

The delegates to the Constitutional Convention in 1787 agreed after extended and acrimonious debate between the large States, which demanded representation based on the population of the several States, and the small States, which insisted on equal representation of States, to a bicameral legislature with one house based on population and the other on equal representation of States. The delegates decided that the population would be determined by a census or numbering of the people and so provided in the Constitution.

Pursuant to its constitutional mandate, Congress has adopted legislation to implement the taking of the decennial census. The First Congress enacted legislation that required the census takers to make "a just and perfect enumeration" of every person within their assigned division. Act of Mar. 1, 1790, § 1, 1 Stat. 101. The enumerator had to prepare a schedule, listing every person within the division by family name. *See id.* at

101-102. In 1810, Congress amended the Census Act to provide expressly that "the said enumeration shall be made by an actual inquiry at every dwelling-house, or of the head of every family within each district, and not otherwise." Act of Mar. 26, 1810, § 1, 2 Stat. 565. In 1850, Congress permitted the enumerators to obtain the required census information from "some member of each family, if any one can be found capable of giving the information, but if not, then of the agent of such family." Act of May 23, 1850, § 9, 9 Stat. 430. By the Act of Mar. 3, 1919, § 12, 40 Stat. 1296, Congress allowed the enumerators to obtain information from neighbors if no household member could be found. *See House of Representatives*, 525 U.S. at 335-36 and 335 n.5; Declaration of Howard Hogan ("Hogan Decl.") ¶ 11.[6] In 1964, Congress repealed the requirement in the Census Act that enumerators must obtain the required data by visiting each household; consequently in the 1970 Census, the Bureau initiated the "mail-out/mail-back" enumerating procedure. *See* 525 U.S. at 337; Hogan Decl. ¶ 42.

In conducting the 2000 census, the Census Bureau employed imputation as one part of the process of determining the total apportionment population for all States. Imputation is a method of coping with missing, incomplete, or inconsistent data. It is applied when missing data are known or reasonably believed to be correlated with the observed or known data and capitalizes on that correlation to produce plausible values for the missing data. (Declaration of David W. Peterson ("Peterson

[6] The Hogan Declaration was submitted in support of U.S. Mem.

Decl.") ¶¶ 6, 10; N.C. App. 1a, 3a.)[7] Imputation, as the term is used by the Census Bureau, refers to "providing responses for missing items by using not only other information for the person or household, but also information from other, similar persons or households." Constance F. Citro, *Editing and Imputation*, in ENCYCLOPEDIA OF THE U.S. CENSUS (Margo J. Anderson ed., CQ Press), at 195-96 (A.R. C 00428-430).

The Census Bureau regards imputation as a traditional part of its methodology in taking the census. Imputation has been used by the Bureau since the 1940 census when it used the process to fill in unknown ages. In the 1950 census, the Bureau used imputation to provide other missing characteristics of enumerated persons. The 1960 census, the first to make extensive use of computers, was also the first to use imputation to add persons to the apportionment count. Imputation was used where housing units were known to exist but the number of occupants in those units was unknown. This statistical process is known as "hot deck" imputation, because household data were processed sequentially by location and the data were stored sequentially in a file. Where occupancy or population data were incomplete, the computer drew from the "hot deck," or the closest sequential data. (Hogan Decl. ¶ 16)

The 1980 census used imputation not only to assign population to housing units where the number of occupants was unknown, but also to assign a status (vacant or occupied) to a housing unit. The 1990 census was similar, but also used imputation to assign a status (vacant/delete/non-existent) where despite evidence that an identified unit actually existed, a lack

[7] The appendix to North Carolina's motion is referred to as N.C. App. ___.

of data made it unclear whether the unit should be deleted as non-existent. The 2000 census was similar to the 1990 census in that imputation was used to assign a status (existent/non-existent) where the existence of a unit identified on the master address file could not be verified, to assign occupancy status (vacant/occupied) when it could not be verified that an identified unit was occupied in fact, and to assign population where the number of inhabitants of an occupied unit could not be verified. There was some basis for believing that every unit on the master address list actually existed. (Defendants' Supplemental Objections and Responses to Plaintiffs' Revised First Set of Interrogatories and Requests for Production of Documents at 4-15, N.C. App 9a-22a; Hogan Decl. ¶¶ 11, 14, 39-76)

The statistical method known as "sampling" is a methodology different and distinct from imputation. Sampling is generally understood to be a process where a sample is drawn at random from a well-defined target population, and every member of the target population has an equal chance of being included in the sample. (Peterson Decl. ¶ 7, N.C. App. 1a-2a) The imputation process used by the Bureau in the 2000 census does not involve random selection; it is a deterministic process. In this sense, it lacks one of the attributes commonly associated with statistical sampling. Additionally, the Bureau's imputation process is focused specifically on assigning data values to individual members of the population, rather than estimating overall population parameters. In this respect, too, it differs from the common conception of statistical sampling. (Peterson Decl. ¶ 9, N.C. App. 2a-3a)

Congress first addressed the issue of "sampling" with respect to the census in 1957, when the Secretary of Commerce requested an amendment to the Census Act to permit the Bureau to use statistical sampling in gathering various components of census information.[8] This resulted in the enactment of the original version of § 195, where the first reference to "sampling" in the Census Act occurred: "except for the determination of population for apportionment purposes, the Secretary may, where he deems it appropriate, authorize the use of the statistical method known as 'sampling' in carrying out the provisions of this title. 13 U.S.C. § 195 (1970 ed.)." *See House of Representatives,* 525 U.S. at 337, 351. In 1976, Congress amended § 195 to provide that "the Secretary shall, if he considers it feasible," use sampling, but still prohibited the use of sampling for apportionment purposes.

Responding to perceived problems in the 1990 census, Congress enacted legislation that directed the National Academy of Sciences to study means to improve the accuracy of the census. In the *1997 Report to Congress,* the Bureau proposed to use sampling in three programs to supplement, but not replace, the traditional means of enumeration; however, after this Court's decision in *House of Representatives* in 1999, the Bureau abandoned its plan to use "sampling" in conducting the census. The Bureau continued to use the well-established practice of imputation along with other statistical methodologies in its 2000 Census. (Hogan Decl. ¶¶ 61-64)

[8] *See* Amendment of Title 13, United States Code, Relating to Census: Hearing on H.R. 7911 before the House Committee on Post Office and Civil Service, 85th Cong., 1st Sess., 4-8 (June 19, 1957).

The 2000 census was conducted on April 1, 2000. Pursuant to the requirements of 13 U.S.C. § 141(b), the Census Bureau tabulated the apportionment count and reported to the President within nine months after the census date, in this case on December 28, 2000. The President transmitted the apportionment calculation to Congress on January 4, 2001; it was received by the House of Representatives on January 5, 2001. *See* 2 U.S.C. § 2a(a) (2001). The Clerk certified the apportionment to the States on January 16, 2001. North Carolina was apportioned thirteen Representatives, an increase of one over her previous apportionment. (N.C. App 26a) Utah's apportionment was unchanged.

ARGUMENT

I. THE COURT IS WITHOUT AUTHORITY TO REASSIGN A CONGRESSIONAL REPRESENTATIVE FROM NORTH CAROLINA TO UTAH.

Utah seeks to have this Court issue an injunction which would, presumably, effect a reallocation of one Representative from North Carolina to Utah. The district court, relying on *Franklin*, held that Utah's request for declaratory and injunctive relief is justiciable. (J.S. App. at 12a) North Carolina submits that the courts may grant prospective declaratory relief for future censuses but cannot revise a completed apportionment without infringing upon the duty and authority regarding apportionment given by the Constitution to Congress.

The duty and authority of enumeration and apportionment is given by the Constitution to Congress. U.S.

CONST. art. I, § 2, and amend. XIV, § 2. The United States Code provides that it is the responsibility of the President to transmit to the Congress, within one week of the opening of each fifth Congress, a statement "showing the whole number of persons in each State . . . as ascertained under . . . [the] decennial census of the population, and the number of Representatives to which each State would be *entitled* under an apportionment of the then existing number of Representatives." 2 U.S.C. § 2a(a) (2001) (emphasis added). The concept of entitlement is reiterated in the next subsection and in later sections of the United States Code:

> (b) Each State shall be *entitled* . . . to the number of Representatives shown in the statement required by subsection (a) of this section, no State to receive less than one Member. It shall be the duty of the Clerk of the House of Representatives, within fifteen calendar days after the receipt of such statement, to send to the executive of each State a certificate of the number of Representatives to which such State is *entitled* under this section.

2 U.S.C. § 2a(b) (2001) (emphasis added). *See also* 2 U.S.C. §§ 2b and 2c (2001).

"In its usual sense, to entitle is to give a right or legal title to." BLACK'S LAW DICTIONARY 532 (6th ed. 1990). When the President provided his statement to Congress that North Carolina "would be entitled" to thirteen Representatives, that "action . . . create[d] an entitlement," a legal right on the part of North Carolina "to a particular number of Representatives and ha[d] a direct effect on the reapportionment" of members of

Congress. *Franklin*, 505 U.S. at 797. This entitlement was formally attested to when the Clerk of the House of Representatives certified:

> Pursuant to the provisions of Title 2, United States Code, Section 2a (b), that the State of North Carolina *shall be entitled*, in the One Hundred Eighth Congress and in each Congress thereafter until a subsequent reapportionment shall take effect under applicable statutes, to thirteen representatives in the House of Representatives of the Congress of the United States.

(N.C. App. 25a-26a (emphasis added))

Even more problematic and speculative than the issue of whether the President would transmit a new calculation to the Clerk of the House of Representatives is what Congress would do upon receipt of such a new calculation. This Court assumed in *Franklin* that "it is substantially likely that the President and other executive and congressional officials would abide by an authoritative interpretation of the census statute and constitutional provision by the District Court, even though they would not be directly bound by such a determination." 505 U.S. at 803; *but see id.* at 829, Scalia, J., dissenting ("Unless the other branches are to be entirely subordinated to the Judiciary, we cannot direct the President to take a specified executive act or the Congress to perform particular legislative duties.").

A new apportionment cannot be accomplished without Congressional action. That Congress has reserved to itself the right to determine apportionment is manifest in the text of 2 U.S.C. § 2a(b): "Each State shall be entitled, in the Eighty-third Congress and in each Congress thereafter until the taking effect

of a reapportionment *under this section or subsequent statute*, to the number of Representatives shown in the statement required by subsection (a) of this section." (emphasis added).

Utah argues in the instant case that a judicial holding that one Representative should be taken from North Carolina and allocated to her would affect no other States. But such a decision would usurp the power allocated separately to Congress by the Constitution. Although the courts can hold that a method of apportionment adopted by Congress does not meet constitutional requirements, *see Department of Commerce v. Montana*, 503 U.S. 442 (1992), the courts simply cannot arrogate to themselves the authority to revise an apportionment already certified by Congress.

The United States Code could not be more clear: the statement of the President, certified by the Clerk of the House of Representatives, *entitles* North Carolina to thirteen Representatives. Absent action by Congress to revoke its allocation, the judiciary lacks jurisdiction or authority to reapportion the Representatives in Congress between North Carolina and Utah. The only remedy available to Utah, assuming any merit can be found in her claims, is declaratory, prospective relief – looking to the next decennial census and apportionment.

II. THE DISTRICT COURT CORRECTLY HELD THAT THE USE OF IMPUTATION IN THE 2000 APPORTIONMENT COUNT IS NOT "THE STATISTICAL METHOD KNOWN AS 'SAMPLING'" PROHIBITED BY THE CENSUS ACT.

Utah's primary argument is that imputation is a form of sampling and that sampling, in its broadest sense is forbidden by § 195 of the Census Act. Utah's contrived and artificial arguments that sampling and imputation are the same statistical tool and are interchangeable concepts must be rejected for at least four reasons: (1) the express language of the statute does not refer to imputation; (2) the statute's use of the word "sampling" is technical in nature and must be interpreted in light of the relevant science or methodology; (3) the legislative history of § 195 evinces no intent to deal with any statistical method other than sampling; and (4) the Census Bureau has consistently treated sampling and imputation as unrelated statistical procedures, each based on a separate science.

The sole question before the Court with respect to §195 is whether the phrase "the statistical method known as 'sampling'" encompasses the statistical method for coping with missing data known as "imputation." The answer is plainly "no." It is a well-established canon of statutory construction that "the starting point for interpreting a statute is the language of the statute itself. Absent a clearly expressed legislative intention to the contrary, that language must ordinarily be regarded as conclusive." *Consumer Product Safety Comm'n v. GTE Sylvania, Inc.*, 447 U.S. 102, 108 (1980). In ascertaining the plain meaning of the language, however, the court "should

not read with blinders on -- context matters." *Smith v. Zachary*, 255 F.3d 446, 453 (7th Cir. 2001) (Williams, dissenting) (citing *Robinson v. Shell Oil Co.*, 519 U.S. 337, 340-41 (1997)). Imputation is not prohibited by the plain language of § 195.

Assuming *arguendo* that more than one reading of the literal text of the statutory phrase at issue were possible, a review of a statute's legislative history is a traditional tool for revealing the intent of Congress. *See Chevron U.S.A., Inc. v. Natural Resources Defense Council*, 467 U.S. 837, 859-63 (1984); *Timex V.I. v. United States*, 157 F.3d 879, 882 (Fed. Cir. 1998). The legislative history of § 195, when originally enacted in 1957 and amended in 1976, is replete with references to the conventional understanding of statistical sampling as a random sample using some percentage of the total population from which to make projections about the total population. (Peterson Decl. ¶¶ 13-20, N.C. App. 4a-9a) Nothing in the legislative history suggests the prohibition in § 195 was meant to include statistical methodologies in general or imputation in particular.

In this case, the bare words do not reference imputation, nor does the prohibitory language attempt to broadly encompass statistical methodologies generally.[9] Instead, the statute refers only to the statistical methodology *known* as sampling. To

[9] Compare the language of H.R. 1469, tit. VIII(b)(1), at 65, when Congress attempted in 1997 to amend 13 U.S.C. § 141(a) to provide that "[n]otwithstanding any other provision of law, no sampling or any other statistical procedure, including any statistical adjustment, may be used in any determination of population for purposes of the apportionment of Representatives in congress among the several States." Although this bill was vetoed by the President, and so never became law, it shows Congress knew how to extend the prohibition beyond "sampling." *See* U.S. Mem. at 30 (Response to Plaintiffs' Statement of Material Facts ¶ 28).

answer the question "known by whom," it must be understood that the phrase appears in the context of census taking. The simplest meaning of the statute's reference is to the statistical method known as sampling by the Census Bureau, and its demographers and statisticians. The conventional understanding of sampling in the context of demographic and population survey applications is the statistical methodology of probability or random sampling, where every member of the target population has a known, non-zero probability or chance of selection. *See* Hogan Decl. ¶ 30. *See also* A.R. C01167-68; U.S. Mem., Exhibit. H (Defendants' Interrogatory Answers in *Orr v. Baldrige*); Peterson Decl. ¶¶ 6-8, N.C. App. 1a-2a. Plaintiffs' expert, Dr. Donald B. Rubin, has in the past *agreed* with this definition or understanding of sampling by the Census Bureau. *See* U.S. Mem., Exhibit G (Affidavit of Rubin in *Orr*) ¶ 5. *See also* U.S. Mem., Exhibit H. Because sampling has an understood and accepted meaning in the area of census or survey applications, it is a "technical term." And where Congress has used technical words or terms of art, they must be understood or interpreted by reference to the art or science to which they apply. *Corning Glass Works v. Brennan*, 417 U.S. 188, 201-02 (1974). *See also* NORMAN J. SINGER, STATUTES AND STATUTORY CONSTRUCTION § 47:29, 358-59 (rev'd 2000) (footnotes omitted) ("In the absence of legislative intent to the contrary, or other overriding evidence of a different meaning, technical terms or terms of art used in a statute are presumed to have their technical meaning.").

Statistical sampling and imputation are separate and distinct statistical methodologies -- each based on its own science and serving different purposes. Imputation deals with

the data processing problem of missing, discrepant, or improperly processed data. It is a valid, well-known and widely used science. *See* Peterson Decl. ¶ 10, N.C. App. 3a; Hogan Decl. ¶¶ 8, 16, 23, 24, 31, 51. Plaintiff's own expert has written extensively on the method, calling it "about the only practically possible method for handling nonresponse." (U.S. Mem., Exhibit D (*Multiple Imputations in Sample Surveys*) at 2) When occupancy or population data for a particular housing unit are incomplete, missing or conflicting, individual data components are imputed premised on local homogeneity. Essentially, similar housing units in close geographic proximity are used as a proxy. The homogeneity assumption that underlies the Census Bureau's imputation technique is well supported in practice, academic literature, and logic.

Since 1960 the Census Bureau has consistently applied imputation techniques for purposes of determining the apportionment and considers it part of the traditional census enumeration. In addition, the use of imputation has been regularly reported to Congress. *See also* Hogan Decl. ¶¶ 11, 63. In view of the extensive oversight provided by Congress to the Bureau's conduct of the census, the failure by Congress to amend § 195 to include a prohibition against imputation speaks volumes. It is well established that "the construction of a statute by those charged with its execution should be followed unless there are compelling indications that it is wrong, especially when Congress has refused to alter the administrative construction." *CBS, Inc. v. FCC*, 453 U.S. 367, 382 (1981) (quoting *Red Lion Broadcasting Co. v. FCC*, 395 U.S. 367, 381 (1969) (footnotes omitted)). *See also Zemel v. Rusk*, 381 U.S. 1, 11 (1965) (Congress' failure to repeal or reverse a statute in

the face of an agency's repeated interpretation is "persuasive evidence that that interpretation is the one intended by Congress").[10]

Moreover, to the extent § 195 is susceptible of more than one meaning, the Census Bureau is entitled to substantial deference under *Chevron*. Indeed, because the Census Clause delegates to Congress the authority to direct the taking of the census and Congress has delegated this authority to the Secretary of Commerce and the Census Bureau, exceptional deference must be accorded when the courts review the Bureau's decisions about the form and content of the census. *See Wisconsin*, 517 U.S. at 19 ("Constitution vests Congress with virtually unlimited discretion" in taking the census).

House of Representatives does not advance Utah's cause. Although sampling is not defined in the opinion, the proposed statistical sampling methods considered by the Court were classic examples of probability sampling using random selection techniques. *See* 525 U.S. at 324-25. Nothing in the opinion extends the meaning of the prohibitory phrase to include statistical methods generally or imputation specifically. Without disagreement from the other justices, Justice Breyer noted that because imputation had been utilized to some degree for the last 50 years, § 195 "could not have been intended as a prohibition so absolute as to stop the Census Bureau from imputing the existence of a living family behind the closed doors of an apparently occupied house, should that family refuse to answer the bell." *Id.* at 355.

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[10] It is implausible to suggest that Congress was not aware that Indiana lost a seat to Florida as a result of the Bureau's use of imputation in the 1980 census or that it was unaware of the outcome of the legal challenge to imputation in *Orr v. Baldridge*.

Utah maintains, without support, that the district court's construction of § 195 would authorize the Bureau to circumvent this Court's holding in *House of Representatives*. (J.S. at 15) First, there is no evidence that the Bureau has ever attempted or would ever attempt to manipulate the results of the census as Utah suggests. Even the use of sampling struck down in *House of Representatives* was an academically endorsed proposal intended to make the census more accurate. Second, Congress, which closely supervises the Bureau's conduct of the census, would not permit a haphazard and non-exhaustive attempt to count the people. Because the Census Clause vests in Congress the responsibility to direct the taking of the census, there is no need for a judicially imposed prophylactic measure intended to prevent some hypothetical attempt to manipulate the Census. Indeed, post-census challenges like the present one offer a greater opportunity for manipulation of the census count when the losing State requests a recount in its favor by tailoring the elimination or the addition of some group.

In light of the express language of § 195 and its legislative history, as well as the longstanding use of well-recognized imputation techniques by the Census Bureau, the district court correctly concluded that Congress never intended § 195 to encompass imputation.

III. THE DISTRICT COURT CORRECTLY HELD THAT THE CONSTITUTION VESTS CONGRESS WITH VIRTUALLY UNLIMITED DISCRETION TO DIRECT HOW AN ACTUAL ENUMERATION SHALL BE CONDUCTED AND DOES NOT PROHIBIT THE USE OF IMPUTATION TO IMPROVE ITS ACCURACY.

Utah asserts that the use of imputation is prohibited by the words "actual enumeration" in the Census Clause.[11] The history of the Census Clause demonstrates that Utah's interpretation of the Clause is not correct. Article I, sec. 2, cl. 3, provides in pertinent part:

> The actual Enumeration shall be made within three Years after the first Meeting of the Congress of the United States, and within every subsequent Term of ten Years, in such Manner as they shall by Law direct.

The most divisive issue confronting the delegates to the Constitutional Convention was how to apportion representation among the States. The contentious question was resolved when the Convention voted to adopt the "Great Compromise," proposed by Roger Sherman of Connecticut, that the legislature should be bicameral with the House of Representatives based on population and the Senate on equal representation of the States. *See generally,* Catherine Drinker Bowen, MIRACLE AT PHILADELPHIA; THE STORY OF THE CONSTITUTIONAL CONVENTION MAY TO SEPTEMBER 1787 (1966) at 84, 86, 94-96,

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[11] In *House of Representatives*, this Court held that the Census Bureau's plan to use statistical sampling to supplement the apportionment count violated § 195 of the Census Act, but the majority opinion did not attempt to interpret the Census Clause.

185-87. The delegates resolved that the allocation of Representatives in the first House would be based on the "conjectural ratio" used by the Continental Congress to apportion the expenses of the Revolutionary War among the States. 1 MAX FARRAND, RECORDS OF THE FEDERAL CONVENTION OF 1787, at 578-79 (1911)

The Framers debated whether it should be left to the discretion of Congress to reapportion itself thereafter as the proportionate population of the several States should change from time to time. *Id.* at 559. Edmond Randolph of Virginia proposed that "instead of leaving it in the discretion of the Legislature, to regulate the representation by a periodical census." *Id.* at 561, 567. He moved to amend a committee report to include the following language: "that in order to ascertain the alterations in the population & wealth of the several States, the Legislature should be required to cause a census, an estimate to be taken within one year after its first meeting; and every ___ years thereafter - and that the Legislature arrange the representation accordingly." *Id.* at 570-71.

North Carolina's Hugh Williamson moved to postpone Randolph's motion and to consider in its place the following:

> that in order to ascertain the alterations that may happen in the population & wealth of the several States, a census shall be taken of the free white inhabitants and 3/5ths of those of other descriptions on the 1st year (after this Government shall have been adopted) and every __ year thereafter; and that the Representation be regulated accordingly.

Id. at 575-79.

Randolph consented to Williamson's motion, but he further insisted, "The census must be taken under the direction of the General Legislature. The States will be too much interested to take an impartial one for themselves," *Id.* at 579-80. Madison later explained that to assure accuracy in the count, *i.e.*, to prevent exaggeration of the count by the States, the apportionment of taxes would be according to population. THE FEDERALIST No. 54, at 340 (James Madison).

The Convention considered alternatives and approved the following resolution:

> Resolved that a Census be taken within six years from the first meeting of the Legislature of the United States and once within the term of every Ten years afterwards of all the inhabitants of the United States in the manner and according to the ratio recommended by Congress in their resolution of April 18, 1783[12] – and that the Legislature of the U.S. shall proportion the direct taxation accordingly.

1 FARRAND at 590-91. By the first week of September, the Convention had agreed to all the provisions of the Constitution in substance. The resolutions adopted were submitted to a Committee of Style and Arrangement. BOWEN at 234. Its final product is the present version of article 1, section 2, clause 3.

The notes of the Constitutional Convention reveal that the delegates, having decided the apportionment of the House of Representatives would be based on the respective

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[12] *See* JOURNALS OF THE CONTINENTAL CONGRESS 1774-1789, at 191 (Gaillard Hunt ed., Government Printing Office 1922) (1783).

populations of the several States and that the population would be determined by a census, did not bother to discuss how the census would be taken. Details of the implementation, such as how the census would be conducted, are not to be found in the Constitution. The Framers followed Randolph's view that "only essential principles should be inserted [in a constitution], lest government be clogged by permanent, unalterable provisions, which ought to be shaped to later times and events." BOWEN at 197 (paraphrasing and quoting a document in Randolph's handwriting found among George Mason's papers).

The Framers of the Constitution specifically placed responsibility to direct the taking of the census in the hands of Congress. The "actual Enumeration . . . shall be made in such Manner as [*Congress*] shall by Law direct." U.S. CONST. art. I. § 2, cl. 3. During the debates the delegates spoke about a "census" or "numbering of the people." The words "actual Enumeration" were substituted for "census" by the Committee of Style. The Committee of Style had no authority to alter the resolutions passed. The Committee's duty was to put the various provisions in an orderly arrangement and rephrase the language as might be appropriate. *See Nixon v. United States*, 506 U.S. 221, 231 (1993) ("accepting as we must the proposition that the Committee of Style had no authority from the Convention to alter the meaning of the Clause, *see* 2 [FARRAND, at 553], we must presume that the Committee's reorganization or rephrasing accurately captured what the Framers meant in their unadorned language"). *See also Powell v. McCormack*, 395 U.S. 486, 538-39 (1969).

Citing *Nixon*, 506 U.S. at 231-32, Utah urges that "actual Enumeration," even though a product of the Committee of

Style, has substantive meaning different from "census" or "numbering."[13] That the Constitution uses "Enumeration" as opposed to "census" is of no import. Article 1, section 9, clause 4 of the Constitution provides: "No Capitation, or other direct, Tax shall be laid, unless in Proportion to the Census or Enumeration herein before directed to be taken." Hamilton in *The Federalist Papers* refers to "[a]n actual census or enumeration" which will be the basis for assessment of direct taxes upon the States. THE FEDERALIST No. 36, at 220 (Alexander Hamilton). Possibly, enumeration was substituted for census because census once meant "the registering of Roman citizens and their property, registered property, wealth." 2 OXFORD ENGLISH DICTIONARY 1031 (2d ed. 1989). Because the Framers decided that the calculation of wealth was too inexact and since the word "census" had taxing and wealth connotations, the Committee of Style may have substituted "enumeration" for "census," as a more precise term. By 1769, the current usage of census as "[a]n official enumeration of the population of a country or district, with various statistics relating to them" was being employed. *Id.*

"Actual" in the phrase "actual Enumeration" distinguishes the initial allocation of Representatives in the Census Clause by the use of a "conjectural ratio" of population from the "*actual*" enumeration, the taking of the census that would take place after the meeting of the first Congress. The "actual Enumeration" would be based solely on population, determined as accurately as possible by a census. Nothing in

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[13] *Nixon* does not help Utah. Plaintiff in *Nixon* asked the Court to ignore the word "sole" in art. I, § 3, cl. 6, added by the Committee of Style. 506 U.S. at 231. North Carolina does not ask this Court to ignore any word in the Census Clause.

the records of the Constitutional Convention suggests that the adjective "actual" was meant to specify how the enumeration was to be accomplished.

The district court rightly rejected Utah's "draconian interpretation" of the phrase "actual enumeration." (J.S. App. at 26a) Utah would have this Court decree that the Census Bureau ignore every person it reasonably believes to exist but who cannot be enumerated. (J.S. at 23) Such an interpretation runs counter to the idea of an "actual Enumeration," as contemplated in the Census Clause. *See Wisconsin*, 517 U.S. at 6 ("each [census] was designed with the goal of accomplishing an 'actual Enumeration' of the population"). Not to count such a person also conflicts with the Fourteenth Amendment concept of equal representation. *See Montana*, 503 U.S. at 463.

Utah points to the concurring opinion in *House of Representatives*, 525 U.S. at 344, Scalia, J., which states that federal courts might be called upon to select among competing methods of estimation. Justice Scalia's fear that the use of statistical techniques in the Census might some day compel the Court "to determine which [estimation technique would] so obviously create[] a distortion that it cannot be allowed" and that having to make such determination would give rise to a "new specialty of 'Census Law,' " *id.* at 349 (emphasis omitted), is not likely to be realized by the use of imputation presented in this case. First, it is the responsibility of Congress to determine how the census will be conducted. *Wisconsin*, 517 U.S. at 15 (citing *Franklin*, 505 U.S. 788) ("the Constitution vests Congress with wide discretion over reapportionment decisions and the conduct of the census"). Second, where there

are several reasonable alternative methods, courts need not interfere with Congress's judgment as to which method to employ. *See, e.g., Montana*, 503 U.S. 442 (Congress's determination of apportionment method is reviewable but due great deference). Even if a federal court were required to review a statistical method, courts are often called upon to assess the opinions of experts. *See, e.g.*, FEDERAL RULE OF EVIDENCE 702 (2001) and *Daubert v. Merrell Dow Pharms.*, 509 U.S. 579 (1993) (courts must act as gatekeepers to exclude unreliable expert testimony). *See also*, *supra* at 19-20.

Plaintiffs' argument that "the Framers knew the difference between population counts derived from estimates and those based on a person-by-person count using first-hand data" (J.S. at 24) is both misleading and a red herring. It is misleading because it implies that the delegates to the Constitutional Convention considered estimating the population as an option. It is clear that by using the phrase "actual Enumeration" the Framers contemplated nothing other than the taking of a census. The only reference to an "estimation" had to do with whether wealth should be taken into account. At best, the wealth of the States could only be "estimated," and eventually the Framers rejected the idea.[14]

Utah's discussion of the Framers' rejection of estimation in determining the population is also a red herring. No one contends that the Framers intended, or that the Constitution permits, an unscientific approximation of the country's

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[14] The records of the Convention show without question that references in the debates to using estimations were all related to calculating wealth. *See* 1 FARRAND, at 561, 582, 583.

population in some manner unrelated to taking a census. The Framers certainly expected that the census would be taken by counting the people in such manner as Congress shall direct. Utah equates estimation, as discussed by the Framers, however, with the process of imputation, thereby contending that the Constitution forbids the latter as well as the former. To estimate the population is to make an approximate judgment as to its size. To use imputation with respect to the census is to employ a scientific method to improve the accuracy of the enumeration of our citizens. (Peterson Decl. ¶ 11, N.C. App. 3a-4a)

It is not reasonable that the Constitutional Convention meeting at the close of the Age of Enlightenment, and including delegates such as Franklin, Rush, and, Hamilton, would have closed the door to advances in science and mathematics in carrying out the provisions of the Constitution. Since the science of statistics was only nascent in the Eighteenth Century,[15] it is improbable that the Framers considered the use of statistical methods for taking the census. The absence of anything in the records of the Convention indicates assuredly that they did not. Instead, the Framers provided for the population to be determined in the manner directed by Congress. For the first census, the population was determined by the best means available at that time to achieve "a just and perfect enumeration," *House of Representatives*, 525 U.S. at 335 – a house-to-house count.

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[15] Statistics as a separate scientific discipline was not recognized until the Twentieth Century. STEPHEN M. STIGLER, HISTORY OF STATISTICS: THE MEASUREMENT OF UNCERTAINTY BEFORE 1900 (1986) at 1. *See also*, 25 ENCYCLOPEDIA AMERICANA 629, 634-35 (2001).

Congress has never required a nose count of every individual as Utah contends. *See* J.S. at 20. From the first census, Congress has allowed data to be obtained from persons other than the individual being counted. At first the number of residents was obtained from the head of the household. (Hogan Decl. ¶ 11) If this could not be accomplished, the information could be obtained from other people and sources likely to have the necessary information, such as agents of the family or neighbors. In the 1960 census, the Bureau, with the approval of Congress, began to use the "mail out/mail back" enumerating procedure. Imputation is but another step, albeit a statistical one, in this evolving process to improve the accuracy of the census. Just as the enumerators were allowed to obtain population data from neighbors when the information could not be obtained by visits to the household, imputation employs data obtained from the "nearest housing unit" actually visited by the enumerators, where the characteristics of that unit are sufficiently similar to the unit from which data was not directly available.

Finally, to read the phrase "actual Enumeration" as defining the process for taking the census is to ignore the substantive provisions of the remainder of the sentence. The Census Clause specifies that (1) there will be an "actual Enumeration" (by the taking of a census used to allocate representation in the first Congress), (2) that the "actual Enumeration" shall be conducted within three years of the first meeting of Congress, (3) and that the enumeration shall be "made . . . in such Manner as [Congress] shall by Law direct." To employ imputation in counting the people is a reasonable and constitutional means to achieve an accurate census count.

In sum, the court below correctly held that the Constitution empowers Congress to determine how the census shall be taken and does not preclude the use of imputation if Congress so desires. To use imputation is within the constitutional discretion of Congress and within the discretion delegated to the Census Bureau.

CONCLUSION

For the foregoing reasons, North Carolina's motion to affirm the decision of the district court, or, in the alternative, to dismiss Utah's appeal should be granted.

Respectfully submitted,

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[Caption Omitted in Printing]

6. Although neither of these definitions is incorrect, each leaves unstated several important characteristics that usually accompany a discussion of statistical sampling. Here are some definitions of sampling and samples put forth by other statisticians:

> [S]tatistical samples … are samples selected by a specified random process. (Williams, A SAMPLER ON SAMPLING, p. 44.)

> A sample survey may be defined as a study involving a subset (or sample) of individuals selected from a larger population. Variables or characteristics of interest are observed or measured on each of the sampled individuals. These measurements are then aggregated over all individuals in the sample to obtain summary statistics (e.g., means, proportions, totals) for the sample. It is from these summary statistics that extrapolations can be made concerning the entire population. (Levy & Lemeshow, SAMPLING FOR HEALTH PROFESSIONALS, pp. 1-2.)

7. As the first of these definitions suggests, there is usually an element of randomness associated with the sampling process. In statistics classes, the subject of sampling is almost always introduced using an example in which the sample is drawn at random from a certain well-defined target population. Prior to the drawing of the sample, every member of the target population has an equal chance of being included in the sample. If the drawing is done one subject at a time, after each draw each remaining member of the population has an equal chance of being selected on the next. This is called simple random sampling. It can be made more complicated by

dividing the population up into sub-units, and drawing a simple random sample from each – the resulting combined sample is called a stratified sample. Or one can draw the sample randomly from the population in such a way that some members always have a greater chance of being selected at each stage than do others – this type of sample is called a probability sample. The main point here is that usually when one thinks of or engages in statistical sampling, it involves random sampling from some population. Were the activity to be repeated in its entirety, it is very likely that a different sample would be drawn, due to the randomness inherent in the process.

8. As the second of these definitions suggests, statistical sampling is usually done for the purpose of estimating some average or proportion that is characteristic of an entire population. One might for example measure the heights of a randomly chosen group of undergraduate students for the purpose of estimating the average height of undergraduates generally. The sample would not typically be used, for example, to estimate or impute the heights of individual students not included in the sample.

About Imputation

9. The imputation process used by the Bureau of the Census in the 2000 census does not involve random selection; it is a deterministic process. In this sense, it lacks one of the attributes commonly associated with statistical sampling. Additionally, the Bureau's imputation process is focused specifically on the assignment of data values to individual members of the population, rather than to estimation of overall population parameters. In this respect, too, it differs from the common conception of statistical sampling.

10. Imputation is a method for coping with survey data that are only partially complete. It is applicable in cases in which the missing data are known (or reasonably believed) to be correlated with the observed or known data, and it capitalizes on that correlation to produce plausible values for the missing data. Imputation is not an alternative to simple random sampling; it is a procedure with a different purpose directed to solving a different problem. Imputation is well-known and widely used. Dr. Rubin devotes a section in his book STATISTICAL ANALYSIS WITH MISSING DATA (Roderick J. A. Little & Donald B. Rubin, Wiley 1987, pp. 62 *et seq.*) to imputation, and discusses there (with numerous references to pre-existing literature) not only hot deck imputation but specifically the nearest-neighbor form of hot deck imputation used by the Bureau of the Census in the 2000 census. The topic is discussed as well in Barry L. Ford's *An Overview of Hot-Deck Procedures* in INCOMPLETE DATA IN SAMPLE SURVEYS, vol. 3, part IV (Academic Press 1983, pp. 185 *et seq.*).

11. I have used imputation myself to deal, for example, with problems caused by application forms that have been lost or destroyed. Under certain circumstances, it can materially improve the quality, reliability and accuracy of a statistical analysis. Imputation has a rational scientific basis, its use by the Bureau of the Census appears to be supported by data correlations ("local homogeneity") observed in census data from previous years, the process is deterministic rather than random in its application, and there is to my knowledge no alternative method for dealing with missing data (*e.g.*, not imputing at all) that is as likely to improve the accuracy of the census count. Indeed, though plaintiffs may have demonstrated that imputing worked to their disadvantage in this instance, they have not to my knowledge demonstrated that imputing produced either an incorrect census count, or a count that is

less correct than one not using imputing.

Concerning Manipulability

12. The quality and completeness of a census are subject to a variety of influences, each of which may be characterized as manipulative, depending on one's viewpoint. The size of the overall census budget, the degree and type of training afforded the census takers, the differential amounts of time and other resources devoted to counting in some locales relative to others; all such factors, because they can be varied and because they will affect the final tallies, can be considered manipulative. As far as I am aware, there is neither proof nor allegation that the Bureau of the Census itself has pursued the counting of the 2000 census with any objective save that of achieving as complete a count as is practical.

1957 Legislative History

13. References to sampling occur several places in the legislative history attendant to the 1957 amendments to the Census Act, including the addition of Section 195. All of the references I have seen are consistent with the usual concept of sampling, namely that involving random selection and the estimation of some overall characteristics of the population. Nothing I have seen suggests that the user of the terms "sample" or "sampling" was referring to hot-deck imputation, or any similar procedure.

14. Although the term "sampling" is not defined, the statement of purpose accompanying the 1957 legislation to amend the Census Act indicates that the use of sample procedures would be authorized by Section 195, because experience had shown that some of the information desired in connection with a census could be secured efficiently through

a "sample survey" and that in some instances, a portion of the universe to be included might be efficiently covered on a sample rather than a complete enumeration basis. Amendment of Title 13, United States Code, Relating to Census: Hearing on H. R. 7911 before the House Committee on Post Office and Civil Service, 85th Cong., 1st Sess., 7 (June 19, 1957). This terminology evokes nothing more than the drawing of a sample by conventional sampling techniques such as random or probability sampling, and then using the sample to make inferences about overall qualities of the population from which it was drawn.

15. Another example of Congress' and the Census Bureau's use of the term "sampling" is provided by Dr. A. Ross Eckler's July 25, 1957, committee testimony. Dr. Eckler, Deputy Director of the Bureau, notes that after the1950 census, the Bureau engaged in a certain amount of testing work to determine the accuracy of figures obtained by means of small samples. Amendment of Title 13, United States Code: Hearing on H. R. 7911 before the House Subcommittee of the Committee on Post Office and Civil Service, 85th Cong., 1st Sess., 19 (July 25, 1957). His description is consistent with choosing a statistical sample using a standard technique such as probability sampling.

16. Similarly, in the August 9, 1957 Report on the proposed Census Act amendments, the committee notes that Section 195 authorizes the use of sampling procedures, except in connection with apportionment of Representatives, when efficient and accurate coverage may be effected through a sample survey. H. R. Rep. No. 85-1043, at 10 (1957). There is no proximate mention of imputation, or the use of an item in the sample to be substituted for an item not in the sample. Again, the usage of sampling terminology here is consistent with the circumstance in which a sample is drawn using

random sampling or some close variation, and the characteristics of the sample are projected to the population as a whole.

17. In his testimony on March 20, 1957, regarding the census budget, Bureau of the Census Director, Dr. Robert W. Burgess, refers to sampling in a variety of contexts. Department of Commerce and Related Agencies Appropriations for 1958: Hearing before House Subcommittee of the Committee on Appropriations, 85th Cong., 1st Sess. (March 20, 1957). With regard to foreign trade and shipping statistics, he seems to be referring to a sample gathered by some method such as probability sampling, and using that sample to make inferences about the population from which the sample was drawn. *Id.* at 673. Likewise, when Dr. Burgess discusses the possibility of using a 25% sample to collect detailed information about an individual's occupation and industry, his usage evokes again a sample drawn randomly, perhaps using a probability sampling technique, and then using the sample to estimate characteristics of the populace overall. *Id.* at 679. At the same hearing, Howard C. Grieves, Assistant Director for Economics, also spoke about the use of samples in collecting foreign trade statistics. His use of sampling terminology is consistent with a straightforward application of probability sampling or some close variant for the purpose of estimating some overall characteristics of the population being sampled. *Id.* at 686. When Dr. Burgess again mentions sampling in connection with a transportation survey, his use of the terminology is entirely consistent with an application in which a sample is drawn in accord with standard statistical techniques and used for the purpose of estimating overall characteristics of the population from which the sample is drawn. *Id.* at 699. Likewise, Dr. Burgess' reference to sampling in connection with passenger travel statistics appears to refer to an ordinary, scientifically drawn sample, whose

characteristics are to be extrapolated to the population as a whole. *Id.* at 701.

1976 Legislative History

18. The Committee Report dated March 24, 1976, regarding legislation for a mid-decade census and other amendments to the Census Act, discusses the possibility of using a sample survey in lieu of a full-scale census at mid-decade. H. R. Rep. No. 94-944, at 4,7 (1976). The discussion there suggests nothing other than the conventional meaning of a sample, namely that drawn according to a process such as probability sampling, for the purpose of estimating overall characteristics of the population.

19. Congresswoman Pat Schroeder's discussion of the bill on April 7, 1976 mentions that it "directs the Secretary of Commerce to use sampling methods rather than 100 percent questionnaires whenever feasible" and that "the committee has rejected the idea of using ... a 25 percent across-the-board sample survey." 121 Cong. Rec. 7, 9792. Ms. Schroeder's remarks appear not to refer to any form of sampling other than the conventional one, namely the drawing of a sample by random selection or one of its close variants, and the use of the resulting sample to estimate qualities of the population as a whole. In similar remarks on October 1, 1976, Congresswoman Schroeder describes the bill as directing "the Secretary of Commerce to use sampling methods rather than 100 percent questionnaires whenever feasible." 121 Cong. Rec. 24, 35171. Again, I see nothing in these remarks or their context to suggest that Ms. Schroeder intended her use of the word "sampling" to extend beyond the conventional – the drawing of a sample by standard techniques and its use to project to the population as a whole.

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20. The Committee Report dated September 16, 1976, on the legislation to provide for a mid-decade census of population, notes that one of the purposes of the legislation is "to direct the Secretary of Commerce to use sampling and special surveys in lieu of total enumeration in the collection of statistical data whenever feasible." S. Rep. No. 94-1256, at 1 (1976). With respect to the mid-decade census, the report notes that a "survey designed to include only 25 percent of the Nation's population ... would not be nearly so useful" as a full census. *Id.* at 3. In discussing Section 7 of the bill, the report notes that new language is added at the end of the subsection "to encourage the use of sampling and surveys in the taking of the decennial census," *id.* at 4, and that "the use of sampling procedures and surveys is urged for the sake of economy and reducing respondent burden," *id.* at 5. Concerning Section 8 of the bill, the report notes that the Secretary "may use statistical techniques such as sampling and surveys to produce current, comprehensive and reliable data." *Id.* It points out that Section 10 requires the Secretary of Commerce to use sampling procedures whenever he deems it feasible, except in the apportionment of the U. S. House of Representatives. *Id.* at 6. There is no indication here that the committee intended any meaning of sampling beyond the conventional – the drawing of a sample according to generally accepted probabilistic methods and the use of that sample to estimate qualities of the population as whole.

FEDERAL DEFENDANTS' RESPONSES TO INTERROGATORIES (EXCERPTS)

[caption omitted in printing]

1940 and 1950 Censuses

The Census Bureau has used imputation to account for missing data since 1940, when it began imputing missing or unknown ages (a form of "characteristic imputation"). Robert Jenkins, Procedural History of the 1940 Census of Population and Housing 67 (1983) (A.R. C00344). This process of imputing ages was called "allocation." In 1940, over 207,000 ages were allocated. A.R. C00458. No count imputation was conducted in 1940.

In 1940, the age allocation process was carried out entirely by hand. See 1940 Procedural History, at 68-73 (A.R. C00345-350). Two general principles were used in deciding what age to assign. First, where possible, the value assigned was guided by other data supplied for that person on the schedule. Id. at 69 (A.R. C00346). Second, the estimated age could not be inconsistent with any information on the schedule that was considered reliable. Id. If an age could not be established by reference to other data on the schedule, the age-assigner used a variety of tables and "decks" that reflected known distributions of ages to arrive at an estimate. Id. at 69-73 (A.R. C00346-50).

In 1950, imputation (allocation or "repair") of the missing characteristics of enumerated persons was extended from age to other characteristics. See Bureau of the Census, United States Dep't of Commerce, Procedural Studies of the 1950

Censuses, No. 2, The 1950 Censuses - How They Were Taken: Population, Housing, Agriculture, Irrigation, Drainage 30 (1955) (A.R. C00353). Values were again assigned on the basis of other information known about the person or from tables or "decks" that provided values based on information known about an appropriate subgroup of other people. Id. at 29-70 (A.R. C00351-75). New punch card sorting machines were used to automate the editing and coding process and also to automate the allocation process. Encyclopedia of the U.S. Census 197 (Margo J. Anderson ed., 2000) (hereafter "Encyclopedia") (A.R. C00431). Again, no count imputation was conducted in 1950.

1960 Census of Population and Housing

The 1960 Census marked the first time that count imputation was used. See Bureau of the Census, United States Dep't of Commerce, 1960 Censuses of Population and Housing: Procedural History 81-84 (1966) (hereafter "1960 Procedural History") (A.R. C00376-80). The 1960 Census was also the first census to use computers to produce the apportionment count. Id. Most of the editing and allocation was performed by computers. Id. at 82 (A.R. C00378); Encyclopedia, at 197 (A.R. C00431). The use of computers in the editing process led to more uniform processing of data than could be accomplished by clerks and also to more sophisticated allocation of data. 1960 Procedural History, at 82 (A.R. C00378).

With regard to allocation of characteristics as in earlier censuses, the general procedure used to impute entries for

missing characteristics was to assign values from a distribution of characteristics for the appropriate homogeneous subgroup of the population found in prior censuses or surveys. 1960 Procedural History, at 82 (A.R. C00378). In 1960, the use of the computer improved this methodology by also drawing on distributions implicit in the tabulation of the 1960 data and allowing the use of a larger number of subgroups. Id. In addition, beginning in 1960 (and continuing to the present), the Census Bureau imputed full sets of 100% characteristics for persons known to exist in occupied households but for whom no characteristic information was available (a process sometimes referred to as "substitution"). Id. at 83 (A.R. C00379). In 1960, the proportion of persons for whom allocation of one or more characteristics was performed was 3 percent of the total population. Id.

As indicated above, the 1960 Census also instituted count imputation. 1960 Procedural History, at 83 (A.R. C00379). In general, the missing population count data were taken from the previously processed schedule, which usually represented a neighboring housing unit. Id. This methodology, sometimes called the sequential hot-deck method, was designed to take advantage of neighboring unit correlations, *i.e.*, the tendency of households within a small geographic area to be similar in most characteristics, which have been shown to exist in the population. A portion of the individuals added through count imputation in the 1960 Census appear to have been necessary because of mechanical difficulties, specifically difficulties with FOSDIC (Film Optical Sensing Devise for Input to Computers), the computer imaging device used to record questionnaires. Id.

The Bureau reported that "[p]ersons substituted" due to "noninterview" or "mechanical failure" were responsible for 0.5 percent of the total U.S. census count in 1960. 1960 Precedural History, at 1-195 (Table B-1) (A.R. C00383). Because, as stated in note 1 supra, the Bureau's use of the term "substitution" has at various times included imputation of a full set of characteristics (age, sex, etc.) for a known, enumerated individual, in addition to count imputation, it is unclear whether the numbers in the cited table refer just to the number of count imputations or include other imputations. But see J. Beresford, The Need for a Study of Persons Created by Computer Edit in the 1960 Census 1 (Jan. 2, 1963) (A.R. C01188-90). Moreover, the Bureau's records do not reveal the exact numbers in this category but only the percentage.[2]

1970 Census of Population and Housing

In 1970 the Census Bureau introduced the mail-out/mail-back procedure, allowing for "self-enumeration" through completion of a written questionnaire.[3] Bureau of the Census, United States Dep't of Commerce, Report to Congress - The Plan for Census 2000, at 1 (Aug. 1997) (A.R. C00133); E. Goldfield, National Research Council, Innovations in the

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[2] The accuracy or source of the numbers cited at A.R. C01189 cannot be confirmed.

[3] In 1960, questionnaires were mailed out but individuals were instructed to turn them in to an enumerator who would be visiting their household.

Decennial Census of Population and Housing: 1940-1990, at 10, 41-43 (Aug. 1992) (A.R. C01353, 1384-86). In 1970 and each subsequent census, the largest share of the population has been enumerated through the mail-out/mail-back procedure. Id.

The 1970 Census used editing and imputation techniques similar to those used in the 1960 Census, except that in 1970 "far more extensive use was made of hot decks." Encyclopedia, at 197 (A.R. C00431); Bureau of the Census, United States Dep't of Commerce, 1970 Census of Population and Housing, Procedural History (PHC(R)-1) 15-65 (1976) (A.R. C00395). It appears that the Census Bureau performed both household size and occupancy imputation in the 1970 Census. The 1970 apportionment count included about 900,000 imputed persons. R. Killion, DSSD Briefs, Information, and Topics Memorandum Series #F-1, Sampling and Statistical Methods in Past Censuses 4 (Jan. 13, 1997) (hereafter "Sampling and Statistical Methods in Past Censuses (#F-1)") (A.R. C01463); United States General Accounting Office, Testimony, GAO/T-GGD-91-8, Statement of L. Nye Stevens, Director, Government Business Operations Issues, General Government Division, before the Subcomm. on Census and Population, House Comm. on Post Office and Civil Serv., at 11 (Feb. 21, 1991) (A.R. C00678) (hereafter "Nye Statement").

In addition, in the 1970 Census, two unusual situations arose that resulted in the use of imputation *in conjunction with* sampling to add persons to the apportionment count. See 1970 Census of Population and Housing, Evaluation and Research Program, Effect of Special Procedures to Improve Coverage in the 1970 Census (PHC(E)-6), Chaps. VI & VII (1976) (A.R. C00404-11) (hereafter "1970 Special Procedures"); Sampling

and Statistical Methods in Past Censuses (#F-1), at 2-4 (A.R. C01461-63). These procedures, known as the National Vacancy Check and the Post Enumeration Post Office Check ("PEPOC"), are described in more detail in the cited documents. Neither procedure has been used on a samping basis in subsequent censuses. See Sampling and Statistical Methods in Past Censuses (#F-1), at 2-4 (A.R. C01461). With regard to these procedures, defendants reiterate their general objection No. 9 to plaintiffs' definition of "statistical imputation" and more specifically object to plaintiffs' interrogatory to the extent that it may be interpreted to encompass the sampling aspects of these two procedures. As discussed below, the two procedures incorporated both sampling and imputation. Defendants include an explanation of the procedures for the sake of completeness but do not thereby agree or concede that the procedures, or the sampling involved in the procedures, constitute "statistical imputation" or "imputation" or that "imputation" or "statistical imputation" is a form of sampling.

The two procedures were as follows:

1970 National Vacancy Check. Near the end of the field enumeration phase of the 1970 census, it became apparent that a non-trivial proportion of occupied units had been incorrectly enumerated as vacant. Since there seemed to be no practical way to identify and obtain questionnaires for all of the misclassified units within the time limits and budget established for the Census, a sampling program was developed to

account for the errors. A national sample of units enumerated as vacant was rechecked, and the results were used to determine a selection parameter (*n*) for all of the units enumerated as vacant. A systematic selection of every *n*th vacant unit was then made, and that unit was convened to an occupied unit with the number and characteristics of the occupants of the nearest preceding occupied unit then imputed to it. Approximately 1,070,000 persons, representing 0.5% of the total population, were added to the official census count from this adjustment procedure. See 1970 Special Procedures, at 11-14 (A.R. C00404-07); Bureau of the Census, United States Dep't of Commerce, 1970 Census: Preliminary Evaluation Results Memorandum No. 12, Results of National Vacancy Check (July 27, 1971) (A.R. C00471-93).

1970 Post Enumeration Post Office Check (PEPOC). In this procedure, Post Offices in the 16 Southern states that had been enumerated through "conventional" census procedures (*i.e.*, the list/enumerate not the mailout/mailback procedure) checked the census listings of addresses, after field enumeration had been completed, and reported any unlisted units. Field followup was then conducted for a sample of the unlisted units to determine what percent had actually been enumerated in the Census. That percentage was used to determine how many housing units to add, and imputation procedures were then used to assign persons and characteristics to

those housing units. Approximately 480,000 persons were added to the official census counts from this procedure. See 1970 Special Procedures, at 15-16 (A.R. C.00408-09). In addition, records show that some 70,000 additional people were added through unspecified corrections made by the Population Division. See Bureau of the Census, United States Dep't of Commerce, 1970 Census: Preliminary Evaluation Results Memorandum No. 11, Final Tally of Census Adds in Sixteen Southern States (July 27, 1971) (A.R. C00465-70). No further information is available at this time about the latter corrections.

1980 Census of Population and Housing

The 1980 Census again included procedures for allocation of missing characteristics and substitution of complete sets of 100% characteristics. See Bureau of the Census, United States Dep't of Commerce, 1980 Census of Population and Housing: History, Part D, Ch. 6, at 6-28, 6-30 (1986) (hereafter "1980 Procedural History") (A.R. C00415, C00418). The 1980 Census also included both household size imputation and occupancy imputation (but did not include the sampling techniques used in the National Vacancy Check and PEPOC in 1970). Id.; D. Harner et al., Imputation in the 1980 Census (Nov. 4, 1982) (A.R. C00616); Nye Statement, at 12 (A.R. C00679). As in 1960, count imputation appears to have been used in instances of mechanical failure. 1980 Procedural History, Part C, Chap. 12, at 12-4 (A.R. C00413); D. Harner,

Census Allocation Program Evaluation - Proposed Study Plan (July 28, 1981) (A.R. C00547-54).

As in prior censuses, imputation of both household size and occupancy status was based on geographic proximity. As household data were processed sequentially, the new data were stored sequentially in a file. When occupancy or population data were incomplete, the computer referred to this sequential file, or "hot deck," to obtain data from the most recently processed housing unit. The specific procedures are described in more detail in the Affidavit of Barbara A. Bailar (Feb. 17, 1982) (A.R. C00566-74). In 1980, approximately 761,000 persons were added to the final count through imputation. Imputation of Population Counts (A.R. C00529-32).

1990 Census of Population and Housing

Count imputation in the 1990 Census differed from 1980 in three major ways. First, count imputation was reduced to the point that it was almost nonexistent. Only approximately 53,600 individuals were imputed in 1990, as opposed to about 761,000 in the 1980 Census and about 900,000 individuals in the 1970 Census. See Sampling and Statistical Methods in Past Censuses (#F-1), at 4 (A.R. C01463).

One reason for the very low rate of count imputation in 1990 relative to 1980 lies in the second major difference, that the Census Bureau instituted better questionnaire control procedures and more clerical edit procedures. See Statement of Stephen E. Fienberg, Maurice Falk Professor of Statistics and Social Sciences, Dean of the College of Humanities and Social Sciences, Carnegie Mellon University, before the Subcomm.

on Census and Population, House Comm. on Post Office and Civil Serv., at 6 (Feb. 21, 1991) (A.R. C00688); D. Griffin, Imputation in the 1990 Census Coverage Implications 6,8 (Aug. 31, 1991) (A.R. C00739-41).[4] These procedures resulted in a large drop in the number of housing units eligible for imputation. Id.

The third major difference relating to count imputation in 1990 was the first recorded introduction of status imputation. Based on information presently available to the Census Bureau, prior count imputation procedures had included only household size imputation and occupancy imputation. The 1990 imputation procedures continued the prior practice of using household size imputation and occupancy imputation but also added status imputation. See Bureau of the Census, United States Department of Commerce, DSSD 1990 REX Memorandum Series #BB-11, Summary of the 1990 Decennial

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[4] The "CCF" referenced by Griffin was the Census Control File, an address file maintained in the field that could be compared to the Address Control File, the predecessor to the MAF, to detect address problems at an earlier stage than in 1980. In addition, depending on the office where the enumerator follow-up questionnaires originated, returns received either an automated or a clerical edit, followed by a telephone call if discrepant data were found. Encyclopedia, at 197 (A.R. C00431). This clerical edit path gave clerks more human review of questionnaire forms and more opportunity to make judgments in resolving questionnaire discrepancies using prepared job aids. As a result, it appears that more discrepancies were resolved, and fewer returns were referred for imputation.

Census Edit and Imputation Procedures for the 100% Population and Housing Items 3 (Oct. 5, 1994) (A.R. C00778).[5]

The addition of status imputation was required because of the introduction of a centralized, computerized address list, called the Address Control File ("ACF"). Address registers for prior censuses had been maintained by hand in local census offices for each separate enumeration district, and no centralized address list was maintained. The 1990 ACF, in contrast, was a centralized, automated list of all housing units that was prepared in advance of the census. The existence of the ACF required reconciliation of each address having incomplete or conflicting information. If one source (the CCF, for example) indicated that a housing unit was a valid, nonduplicated unit, while the ACF indicated the unit should be deleted, this discrepancy had to be resolved. DSSD REX 1990 Memorandum Series #BB-7, Imputation in the 1990 Census - Coverage Implications, at 6 (Sept. 4, 1992) (A.R. C00739). The 1990 imputation procedures, therefore, had to allow for the

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[5] BB-11 was prepared by James Treat, a mathematical statistician, as part of the post-census evaluation program following the 1990 Census. Mr. Treat was instructed to form a group of knowledgeable Census Bureau employees, the imputation Algorithm Working Group, to review and better document the 1990 imputation specifications. The Working Group reviewed the details of the 1990 imputation program and produced BB-11, which therefore represents the authoritative statement regarding the 1990 imputation procedures.

imputation of a status of "delete," rather than only "occupied" or "vacant," to resolve these discrepancies.[6]

2000 Census of Population and Housing

With several exceptions noted below, the imputation procedures in Census 2000 were similar to earlier procedures. Thus, household size imputation and occupancy imputation were used, just as they had been used in 1960, 1970, 1980, and 1990. DSSD Census 2000 Procedures and Operations Memorandum Series #Q-34, Census 2000 Specifications for Imputing Housing Unit Status and Population Counts, at 2 (Sept. 26, 2000) (A.R. C00859) (hereafter "2000 Imputation Specifications (Q-34)"). In addition, as in 1990, status imputation allowed for the imputation of the existence or nonexistence of a separate, non-duplicated housing unit in instances where records were not conclusive about the unit. Id. Again, the imputation was performed through a variant of the hot-deck method.[7] Id.

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[6] No procedures similar to the National Vacancy Check or PEPOC were used in 1990.

[7] The cited memorandum describes this category as containing "units for which we know nothing" and "units identified with unknown status of occupied, vacant, or delete." 2000 Imputation Specifications (Q-34), at 1-2 (A.R. C00858-59). This memorandum was written primarily for Bureau insiders, and these descriptions are intended to be shorthand descriptions of addresses that are recorded in the DMAF but for which Bureau records reflect no final status of occupied,

The Census 2000 imputation procedures introduced several modifications. The details of the procedures used are set forth in 2000 Imputation Specifications (Q-34) (A.R. C00858-86) and are summarized below:

- The Census Bureau selected the donor housing units only from the universe of housing units that had their questionnaire completed by an enumerator, rather from the universe of all housing units. A.R. C00861. For mailback areas this meant that donors were restricted to those households requiring field follow-up. Also, if possible, the donor and the donee were both from a single unit structure or a multi-unit structure. A.R. C00862. The Census Bureau made this change because housing units in the follow-up universe are generally more similar to each other than to housing units that mail back their returns and households in single unit structures are more similar to each other than to those in multi-unit structures.
- A more sophisticated procedure was adopted to locate the donor unit. Rather than imputing from the nearest unit that was processed prior to the donee unit, the computer searched for the nearest acceptable (as defined under the first bullet above) donor unit from all processed units in the tract, rather than only those already processed. A.R. C00870.
- In 1990, the population count was capped at seven persons, the number of persons allowed on census mail

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vacant, or delete.

FEDERAL DEFENDANTS' RESPONSES TO INTERROGATORIES (EXCERPTS)

return forms; that is, no housing units with greater than seven residents were used as donor housing units. This cap was dropped in Census 2000 as no rationale supported the imposition of an arbitrary cap on the size of the donor unit.

- The clerical editing process was greatly reduced in Census 2000, replaced by increased computer editing that was less subjective, more uniformly applied, and more uniform across areas and groups.

A total of approximately 1.2 million persons, or 0.4 percent of the population, were added to the apportionment count in 2000 through count imputation. DSSD 2000 Procedures and Operations Memorandum Series B-17, Census 2000: Missing Housing Unit Status and Population Data (Feb. 28, 2001) (A.R. C01010-28).[8]

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[8] No procedures similar to the National Vacancy Check or PEPOC were used in 2000.

LETTER FROM CLERK OF U.S. HOUSE OF REPRESENTATIVES TO GOVERNOR MIKE EASLEY TRANSMITTING CERTIFICATE OF ENTITLEMENT, JANUARY 16, 2001

Jeff Trandahl
Clerk
Martha C. Morrison
Deputy Clerk

H-154 The Capitol

Office of the Clerk
U.S. House of Representatives
Washington, DC 20515-6601

January 16, 2001

The Honorable Mike Easley
Governor
State Capitol, 116 West Jones Street
Raleigh, NC 27603-8001

Dear Governor Easley:

Pursuant to the provisions of Section 2a(b) of Title 2 of the United States Code, I am hereby transmitting to you a certificate stating the number of Representatives to which your state is entitled in the United States House of Representative in the 108th Congress and in each subsequent Congress until a new reapportionment takes effect.

Sincerely,
/s/ Jeff Trandahl, Clerk
U.S. House of Representatives

LETTER FROM CLERK OF U.S. HOUSE OF REPRESENTATIVES TO GOVERNOR MIKE EASLEY TRANSMITTING CERTIFICATE OF ENTITLEMENT, JANUARY 16, 2001

Certificate of Entitlement

(seal omitted in printing)

HOUSE OF REPRESENTATIVES
OFFICE OF THE CLERK
WASHINGTON, D.C.

I, Jeff Trandahl, Clerk of the House of Representatives of the United States, Hereby Certify, Pursuant to the Provisions of Title 2, United States Code, Section 2a (b), That the State of

NORTH CAROLINA

Shall be Entitled, in the One Hundred Eighth Congress and in Each Congress Thereafter Until a Subsequent Reapportionment Shall Take Effect Under Applicable Statute, to

THIRTEEN REPRESENTATIVES

in the House of Representatives of the Congress of the United States.

In Witness Whereof I Hereto Affix My Name and the Seal of the House of Representatives of the United States of America this Sixteenth Day of January, 2001, in the City of Washington, District of Columbia

/s/ Jeff Trandahl
CLERK OF THE HOUSE OF REPRESENTATIVES OF THE UNITED STATES

Supreme Court, U.S.
FILED
DEC 27 2001
CLERK

No. 01-714

IN THE

Supreme Court of the United States

STATE OF UTAH, *et al.*,

Appellants,

v.

DONALD L. EVANS, *et al.*,

Appellees.

On Appeal from the United States District Court for the District of Utah

REPLY TO APPELLEES' MOTIONS TO AFFIRM

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Appellees' Motions to Affirm merely confirm the need for plenary review of the statutory and constitutional questions presented by Utah's challenge to the Bureau's use of "hot-deck imputation" in calculating apportionment. On the statutory question, appellees fail to offer any persuasive support for the district court's notion that Section 195 of the Census Act prohibits only "random" sampling, and thus does not extend to non-random sampling methods such as imputation. Nor do the appellees make any effort to dispute Utah's showing that this distinction would enable an end-run around this Court's decision in *Department of Commerce* v. *United States House of Representatives*, 525 U.S. 316 (1999). Appellees likewise offer no persuasive rebuttal to Utah's position on the constitutional question, which garnered four concurring votes in *House of Representatives* but was hastily cast aside below. Plenary review is thus plainly appropriate, as the Solicitor General implicitly concedes by failing to request either summary affirmance or dismissal for want of a substantial federal question.[1]

I. THE CENSUS ACT

As Utah demonstrated in its Jurisdictional Statement, two principal differences may be identified between the Bureau's imputation procedure and the statistical method struck down in *House of Representatives*. First, imputation was used to estimate a much smaller portion of the population. Second, it did so in a non-random fashion because, when enumerators were not able to determine the occupancy characteristics (or

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[1]North Carolina does move to dismiss on jurisdictional grounds, arguing that North Carolina's certificate of "entitlement" to 13 representatives (issued by the Clerk of the House of Representatives) is somehow final and unreviewable. NC Mot. 12. To the extent this argument goes beyond the justiciability argument that the district court correctly refuted (see JS App. 9-12), it amounts to nothing more than a dressed-up political question argument of the sort rejected in *Department of Commerce* v. *Montana*, 503 U.S. 442, 456-459 (1992).

in some cases, the mere existence) of non-responding units after six follow-up visits by census enumerators, the Bureau statistically estimated those characteristics by reference to a "sample" consisting of the nearest neighboring unit that was counted.[2]

Appellees now concede that the first distinction makes no statutory difference, as this Court made clear in *House of Representatives*. See 525 U.S. at 342.[3] Thus, appellees' statutory position ultimately boils down to the second distinction—that § 195 prohibits only *random* sampling and not the broader category of "sampling." Plenary review is warranted because this supposed distinction is contradicted by the plain language of the statute and by the Census Bureau's position prior to this litigation, and because Congress could not have intended to embrace a distinction such as this, which would render the statutory prohibition a nullity even as it creates added opportunities for political manipulation.

1. Appellees first contend that the term "sampling" is a "term of art" that would not be understood by statisticians to encompass hot-deck imputation. SG Mot. 11; NC Mot. 17.

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[2] Appellees do not dispute that the Bureau's own documents indicate that it intended to use the same "nearest-neighbor" approach utilized in hot-deck imputation in the proposed methodology struck down in *House of Representatives*. *See* Administrative Record ("AR") C01647-C01656 (setting forth the proposed method of assuming that each non-sampled unit had the same occupancy characteristics as its geographically closest sampled neighbor).

[3] Appellees do attempt to defend imputation by noting that it is "used only as a last resort after the failure of extensive direct efforts to collect occupancy information regarding a particular unit." SG Mot. 16; see also NC Mot 17-18. But appellees make no effort to explain how this "last resort" feature of hot-deck imputation insulates it from the statutory ban on sampling. Nor could they. This Court already has held that § 195 prohibits the use of sampling in "determin[ing]" the apportionment count, noting that "[w]hether used as a 'supplement' or as a 'substitute'" for an actual enumeration, "sampling is still used in 'determining'--that is, in 'the act of deciding definitely and firmly.'" 525 U.S. at 342.

Specifically, because imputation purportedly "does not incorporate the process of *deliberately* selecting a subset of the population *during the design phase* of a survey," the Solicitor General asserts that imputation survives under the statute. *Id.* at 13.

However, neither the language nor the logic of the statute can support a construction that would limit § 195's prohibition of "sampling" to only those statistical methods that involve the random, "deliberate selection" of sampled units "during the design phase of a survey." To the contrary, the Bureau's own 1997 Report to Congress unambiguously states that "statistical sampling" refers to a process that "'occurs *whenever* the information on a portion of a population is used to infer information on the population as a whole.'" Bureau of the Census, *Report to Congress—The Plan for Census 2000*, at 23 (Aug. 1997) ("*Census 2000 Report*") AR C00155 (emphasis added). The parties embraced this same definition in the Statement of Undisputed Facts. See Pls.' Statement of Undisputed Facts ("SUF") ¶ 24, *attached to* Pls.' Mem. in Supp. of Summ. J. ("Utah Mem.") (filed June 11, 2001).[4] As Judge Greene noted in his dissent, there can be no doubt that imputation qualifies as sampling under this (or any other) common-sense definition. See JS App. 32-33. It is a statistical method that uses "information on a portion of a population" to "infer information on the population as a whole." It does so by using occupancy data

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[4] Appellees also half-heartedly suggest that this definition does not encompass imputation, purportedly because the Census 2000 Report goes on to state that "[a]mong professional statisticians, the term 'sample' is reserved for instances when the selection of the smaller population is based on the methodology of their science." SG Mot. 14; NC Mot. 17. But there simply is no dispute that imputation, like other sampling methods, is "based on the methodology of the[] science" of statistics. Indeed, appellees repeatedly have acknowledged that imputation is a "statistical methodology" that relies on the statistical principle of "homogeneity." SG Mot. 9, 11; NC Mot. 18.

from observed housing units for the purpose of estimating the occupancy (or even existence) of unobserved units. See JS 14-15.

Indeed, the Solicitor General's Motion elsewhere adopts definitions that similarly encompass hot-deck imputation. For example, the Solicitor General offers textbook and dictionary definitions that define sampling as "'a method of selecting a fraction of the population in a way that the selected sample represents the population,'" or as an "'assessment of the quality or character of a whole by examination of a sample.'" SG Mot. 12. Yet the Bureau's imputation procedure clearly qualifies as a method of sampling under these definitions: it uses a "fraction of the population"—namely, the nearest neighbors to the addresses with missing data--to "represent" the unobserved portion of the population, *i.e.*, the addresses with missing data. *Id.* That procedure thereby enables the Bureau to estimate the size of the "whole by examination of a sample."[5] *Id.*; see also JS App. 33a (Greene, J., dissenting from judgment below).

2. The undisputed facts also demonstrate that any construction of § 195 that would limit its prohibition to deliberate or random sampling would nullify the statute and result in an absurdity. Indeed, appellees make no effort to refute Utah's showing that this distinction would leave the Census Bureau free to do exactly what this Court held that in *House of Representatives* that the Bureau could not do—to enumerate 90% of the population while using statistical methods to estimate the remainder. Under the opinion below,

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[5] It does so, to be sure, on an individualized, unit-by-unit basis, and not by means of an average. But this is only a difference in mathematical operations, and is not relevant to the above definitions. More fundamentally, the individualized nature of imputation does not distinguish that procedure from the procedure invalidated in *House of Representatives*. It is undisputed that, under that procedure, the Bureau planned to use nearest-neighbor imputation to estimate the occupancy characteristics of units randomly selected for estimation. JS 12.

the Bureau could accomplish this end-run around *House of Representatives* simply by devoting fewer resources to the non-response follow-up process and then estimating the predictably larger unenumerated segments of the population through hot-deck imputation or some other "non-random" sampling procedure. Congress could not have intended to embrace a distinction that would permit such easy nullification of the statute. See JS 15-16.[6]

Moreover, appellees' argument would ascribe to Congress not only the intention to permit nullification of § 195, but to do so in a particularly perverse way. The undisputed facts establish that random or "deliberate" sample-selection produces *more* reliable estimates than non-random procedures such as hot-deck imputation. SUF ¶¶ 33-35; JS 16 n.4. This is because randomly sampled units are likely to be representative of the estimated units, but units that responded to enumerators are not likely to be representative of the estimated units that did not respond after six visits.[7]

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[6] The Solicitor General is also incorrect in suggesting that Utah's reading of the term "sampling" would deprive the limiting phrase, "the statistical method known as," of any meaning. The Solicitor General does not dispute that there are many "statistical methods" in addition to random sampling and imputation. Thus, both terms can be included in the generic term "sampling" without doing violence to the statutory text.

[7] Appellees baldly assert in a footnote that "imputation can be more accurate than sampling," SG Mot. 18, n.5, but their cited authority neither supports this conclusion nor refutes the undisputed facts below. Instead, the documents cited by appellees merely establish (in their own words) that "housing units in a geographic proximity tend to be similar in size." *Id.* But this basic principle of homogeneity does nothing to refute the common-sense proposition that randomly selected units are more likely to be representative of the estimated population than units selected simply by virtue of their response during follow-up efforts. Indeed, it would be more reasonable to assume that units for which enumerators cannot acquire any data after six visits are likely either unoccupied or are not housing units at all (*e.g.*, a business, a storage unit, or even a typographical error on the

Accordingly, the district court's construction of the statute can be sustained only by attributing to Congress the absurd intent of permitting relatively unreliable methods of sampling while rejecting more reliable methods.[8] See JS 15-16.

3. Appellees have also failed to rebut Utah's showing that the Bureau's interpretation poses an enormous risk of political manipulation. Even if, with imputation, "neither the number nor the identity of the 'donor' or 'donee' units is pre-selected by the Bureau," SG Mot. 17, that does not eliminate the potential for manipulation. As demonstrated by unrefuted evidence below, the Bureau may alter the impact and extent of imputation by using different statistical methods or by altering the nature and extent of its followup procedures. See SUF ¶¶ 39-43. Moreover, given the potential for manipulation of both the number and types of addresses listed in the Bureau's Master Address File, the Bureau's new-found use of imputation to determine the "occupancy status" of an address with no known occupants by itself creates nearly unlimited potential for politically motivated mischief.

Even more significant, the Bureau's interpretation leaves the Bureau (and by extension the Secretary of Commerce and the President) the ultimate authority to decide whether to include *any* statistical adjustments in the final apportionment count. Since those conducting the census know at that point

master address file), and therefore quite unlike the responding units. *See* JS 16 n.4; SUF ¶¶ 33-35.

[8] Appellees are thus mistaken in denying that Utah has claimed that imputation "would reduce the accuracy of the apportionment counts." SG Mot. 28. In fact, Utah's experts offered essentially unrefuted testimony that, for reasons summarized above, the non-representative, non-random nature of the hot-deck method was likely to produce an overcount. SUF ¶¶ 33-35. Moreover, the Bureau itself has admitted that it does not know whether imputation has a positive or negative effect on distributive accuracy, which is the only accuracy that counts for purposes of apportionment. *See* Federal Defs.' Mem. in Opposition to Summ. J. ("DOJ Mem.") at 15, ¶ 35 (filed July 11, 2001).

what the impact of a statistical adjustment will be on apportionment, the prospect of political considerations entering into the decision is undeniable.

4. Appellees cannot escape these concerns—or the need for plenary review--by arguing that the Court should accord *Chevron* deference to the Bureau's use of hot-deck imputation. SG Mot. 20-21; NC Mot. 18-20; see *Chevron U.S.A., Inc.* v. *Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984). In the first place, it is undisputed that the Bureau dramatically altered its method of imputation in the 2000 census—using it for the first time to estimate the occupancy not only of houses known to be occupied (or at least known to exist), but also of houses whose very existence it had never established. SUF ¶ 18; JS 4-5. The use of imputation with respect to such households of unknown existence[9] was alone enough to shift the disputed seat from Utah to North Carolina, SUF ¶ 47, and thus there is no relevant historical practice that would permit the Court to stop short of reaching its own decision as to whether this method violates the Census Act.

In any event, deference even to the method of imputation employed by the Bureau in the previous four censuses is inappropriate. Obviously, § 195's unambiguous prohibition of the use of *any* statistical "sampling" must prevail over any contrary agency interpretation. *Chevron*, 467 U.S. at 842-43. Moreover, the Bureau's supposed interpretation of § 195 has no persuasive weight because, aside from the litigation context, the Bureau has never "expressly articulated [a] position at the administrative level as to the meaning and impact of" § 195. *Investment Company Inst.* v. *Camp*, 401

[9] The Bureau's sole basis for assuming such households into existence was their presence on the Master Address File, which is known to include many errors, including addresses that represent vacant lots, demolished buildings, storage units, businesses, and other non-residential structures. *See* JS 4.

U.S. 617, 627, 628 (1970). Accordingly, the Bureau has never expressly "satisfied" itself that the use of imputation in the apportionment count "w[ould] not violate" the Census Act. *Id.* Thus, the appellees' plea for deference merely heightens the need for plenary review by this Court.

II. THE CENSUS CLAUSE

The constitutional question set forth in Utah's Jurisdictional Statement is also plainly substantial. Indeed, appellees do not dispute that four members of this Court have already embraced the construction of the Census Clause put forward by Utah here, *House of Representatives*, 525 U.S. at 346-47 (Scalia, J., concurring), or that Utah has identified further textual and historical support for that view. Appellees' Motions to Affirm offer no persuasive response to the textual and historical grounds for this position. They do seek to introduce a few arguments not presented below, but those arguments are unpersuasive and in any event merely confirm the need for full briefing and argument on the merits.

1. The *only* definitions of "enumeration" presented to the court below resembled the historical definitions relied on by the four-Justice concurrence in *House of Representatives*, which define the term to mean a count effected "singly" or "number by number." 525 U.S. at 346-47; see JS at 20. In apparent recognition of the fact that imputation is incompatible with this understanding of the constitutional language, the Solicitor General cites an alternative definition that defines enumeration to refer to the "action of ascertaining the number of something." SG Mot. 22; see also NC Mot 28-29. Significantly, however, the definition identified by the Solicitor General comes from a *1933* edition of the Oxford English Dictionary. Thus, even after repeated opportunities for briefing on this question, appellees still have not identified *any* definition from the founding era that can be reconciled with the Bureau's use of statistical estimates.

Nor have appellees made any attempt to refute the extensive historical evidence that Utah presented to the

district court and summarized in its Jurisdictional Statement. This unrefuted evidence demonstrates that the generation of the Framers understood the difference between population counts derived even partially from estimates and those based solely on a person-by-person count, and that they consistently used the term "enumeration" in reference to the latter. Appellees offer a series of "structural" arguments in an effort to revive the district court's conclusion, SG Mot. 22; NC Mot. 28-29, but those arguments shed no real light on the issue and, in all events, would deprive the language of the Census Clause of its plain meaning.

2. Appellees' insistence that enumerators historically have relied on evidence other than their own firsthand observation, SG Mot. 23, 30; NC Mot. 28-29, likewise does nothing to undermine the historical understanding of an actual enumeration. This historical evidence merely suggests that an actual enumeration does not necessarily contemplate a physical "headcount" by the enumerator, but permits the enumerator to rely on individualized count data provided by heads of household or others who have themselves performed such an individualized count. This uncontroversial conclusion is hardly an indication that the Framers would have thought an actual enumeration could be performed by a mere estimate not rooted in any individualized count at all.

3. Appellees also mistakenly suggest that the "actual Enumeration" language in the Census Clause can be cast aside as a careless addition by the Committee on Style, and that the drafting history of that Clause indicates that the Framers were unconcerned with the "means of taking the census." SG Mot. 25; see also NC Mot. 23-25. From the outset of the debates on this Clause, the Framers' overriding concern was to provide a "permanent and precise standard" for the census. *See* 1 *Records of the Federal Convention of 1787*, at 578 (Max Farrand ed., rev. ed. 1966). This policy consideration arose in the context of the debate over whether to apportion representation on the basis of each State's

wealth, or on the basis of each State's comparative population. See *id.* at 582. Although an early proposal would have permitted apportionment "according to the principles of wealth & population," the wealth criterion was soon abandoned, primarily on the ground that any assessment of wealth would have introduced too much discretion. *Id.* William Paterson, for example, objected to a standard calling for an "estimate for the future according to the Combined rule of numbers and wealth as too vague." *Id.* at 561.

By requiring an actual count, the Framers ensured that apportionment would proceed on the basis of objective data, not subjective estimates. Appellees' attempts to brush aside the actual enumeration clause ignore both the plain language and the drafting history of the Census Clause.

4. Finally, appellees' attempts to question the significance of historical evidence presented by Utah are simply mistaken. It is not accurate to say that "at most the Framers distinguished between systematic empirical efforts to count the population" and "attempts to infer population figures from pre-existing data that had initially been compiled for other purposes." SG Mot. 30; see also NC Mot. 25. During the era of the Framers, Americans and Britons alike conducted partial enumerations in an attempt to derive estimates of larger populations, yet they consistently used the term "enumeration" to refer to actual counts and to prohibit the use of estimates in the apportionment count.[10] See JS 24-30.

CONCLUSION

For the foregoing reasons, the Court should note probable jurisdiction and reverse the judgment of the district court.

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[10] *See, e.g.*, 3 Jeremy Belknap, *The History of New Hampshire* 233-34 (1792) (discussing an early "survey" of the New Hampshire population conducted "partly by enumeration and partly by estimation"); *see generally*, *The Population Controversy* (D.V. Glass, ed., 1973).

Respectfully submitted,

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QUESTIONS PRESENTED

1. Whether the court below erred in ruling that the Census Bureau may use the statistical method of "hot-deck imputation" to estimate unobserved segments of the population for purposes of congressional apportionment, despite this Court's ruling in *Department of Commerce* v. *United States House of Representatives*, 525 U.S. 316 (1999), that the Census Act prohibits the use of any statistical sampling in the apportionment count.

2. Whether the court below erred in ruling that the Census Bureau may, consistent with the constitutional requirement that congressional representation be apportioned pursuant to an "actual Enumeration" of each State's population, use the statistical method of hot-deck imputation to estimate unobserved segments of the population.

PARTIES TO THE PROCEEDING

The appellants herein, who were plaintiffs before the three-judge district court, are the State of Utah; Michael O. Leavitt, Governor; Olene S. Walker, Lieutenant Governor; Mark L. Shurtleff, Attorney General; L. Alma Mansell, President, Utah Senate; Martin R. Stephens, Speaker, Utah House of Representatives; Mike Dmitrich, Minority Leader, Utah Senate; Ralph Becker, Minority Leader, Utah House of Representatives; U.S. Senators Orrin G. Hatch and Robert F. Bennett; U.S. Representatives James V. Hansen, Christopher B. Cannon, and James Matheson; and Utah residents Blake J. Russon, Michael Wayne Anderson, Brent McGhie, and Jean McGhie.

The appellees in this Court, who were the principal defendants below, are Donald L. Evans, Secretary of the United States Department of Commerce; and William G. Barron, Acting Director of the United States Census Bureau.

Additional appellees, who appeared as defendant-intervenors below, include the State of North Carolina; Michael F. Easley, Governor; Beverly Perdue, Lieutenant Governor; Roy Cooper, Attorney General; Marc Basnight, President Pro Tempore, North Carolina Senate; James Black, Speaker, North Carolina House of Representatives; Patrick Ballentine, Minority Leader, North Carolina Senate; Leo Daughtry, Minority Leader, North Carolina House of Representatives; U.S. Senators Jesse Helms and John Edwards; and U.S. Representatives Eva M. Clayton, Bob Etheridge, Walter B. Jones, David Price, Richard Burr, J. Howard Coble, Mike McIntyre, Robin Hayes, Sue Myrick, T. Cass Ballenger, Charles H. Taylor, and Melvin L. Watt.

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OPINION BELOW

The opinion of the three-judge district court, *Utah* v. *Evans*, No. 2:01-CV-292G (D. Utah Nov. 1, 2001), is unpublished, and is reproduced in the appendices to the Jurisdictional Statement ("JS App.") at 1a-34a.

JURISDICTION

The judgment of the three-judge district court was entered on November 5, 2001. Appellants filed a timely Notice of Appeal on November 5, 2001, and a timely Jurisdictional Statement on November 20, 2001. On January 22, 2002, this Court entered an order postponing further consideration of the question of jurisdiction to the hearing of the case on the merits. The jurisdiction of this Court is invoked under 28 U.S.C. §§ 1253, 2101(b), and under the Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Act, 1998, Pub. L. No. 105-119, § 209(e)(1), 111 Stat. 2440, 2482.

Pursuant to Rule 18.12, appellants submit that this Court has jurisdiction over this appeal, and that the only questions that have been raised with regard to jurisdiction are insubstantial. Before the district court, appellee North Carolina argued that challenges to "apportionment tallies flowing from the 2000 census" are not justiciable because "the President has already transmitted to Congress the statement required by 2 U.S.C. § 2a(a) and the Clerk of the House of Representatives has already sent to the states a certificate of the number of Representatives to which each state is entitled as required by 2 U.S.C. § 2a(b)." JS App. 9a-10a. North Carolina raised the same argument before this Court in its Motion to Dismiss or Affirm, see NC Mot. 12, although the Solicitor General has raised no such argument. After a full analysis of the issue, the district court correctly rejected North Carolina's argument, concluding that this Court's decision in *Franklin* v. *Massachusetts*, 505 U.S. 788

(1992), "establishes that Plaintiffs' Census Act and constitutional claims are justiciable." JS App. 10a.

CONSTITUTIONAL AND STATUTORY PROVISIONS INVOLVED

1. Article I, Section 2, Clause 3 of the United States Constitution is reproduced at JS App. 37a.

2. Sections 1 and 2 of Amendment XIV of the United States Constitution are reproduced at JS App. 37a-38a.

3. Sections 141(a) and 195 of Title 13, United States Code, are reproduced at JS App. 39a.

STATEMENT OF THE CASE

In the 2000 census, the Secretary of Commerce and the Director of the Census Bureau (collectively "the Bureau") used a statistical sampling technique known as "hot-deck imputation" to estimate certain segments of the population for purposes of congressional apportionment. That method, which deprived Utah of a fourth seat in the House of Representatives, is unlawful under the Census Act's prohibition on "statistical sampling," as authoritatively construed by this Court in *Department of Commerce* v. *United States House of Representatives*, 525 U.S. 316, 343 (1999), and under the Constitution's Census Clause.

1. **Historical Background on Sampling.** The decennial census is conducted pursuant to Article I, Section 2, Clause 3 of the United States Constitution. As modified by the Fourteenth Amendment, this "Census Clause" requires Congress to conduct an "actual Enumeration" of "the whole number of persons in each State" every ten years, and to use that enumeration as the basis for apportioning seats in the House of Representatives. U.S. Const. art. I, § 2, cl. 3; *id.* amend. XIV, § 2. Through the Census Act, 13 U.S.C. § 1 *et seq.*, Congress has delegated responsibility for conducting the census to the Secretary of Commerce, who is directed to

conduct "a decennial census" of the "population" of each State. 13 U.S.C. § 141(a).

As this Court explained in *House of Representatives*, "[f]rom the very first census, the census of 1790, Congress has prohibited the use of statistical sampling in calculating the population for purposes of apportionment." 525 U.S. at 335. For example, "[t]he First Congress enacted legislation requiring census enumerators to swear an oath to make 'a just and perfect enumeration' of *every person* within the division to which they were assigned." *Id.* (emphasis added). Moreover, "[e]ach enumerator was required to compile a schedule of information for his district, listing by family name the number of persons in each family that fell into each of five specified categories." *Id.*

In 1810, Congress revised that legislation, and required "that 'the said enumeration shall be made by an actual inquiry at every dwelling-house, or of the head of every family within each district, and not otherwise,' and expanding the number of specifications in the schedule of information." *Id.* The requirement "that census enumerators visit each home in person" was a component of all of the "statutes governing the next 14 censuses." *Id.*

The current Census Act, enacted in 1954, initially "requir[ed] enumerators to 'visit personally each dwelling house in his subdivision' in order to obtain 'every item of information and all particulars required for any census or survey' conducted in connection with the census." *Id.* at 336. In fact, "the first departure from the requirement that the enumerators collect all census information through personal visits to every household in the Nation came in 1957 at the behest of the Secretary" of Commerce. *Id.* In that year, the Secretary "asked Congress to amend the Act to permit the Bureau to use statistical sampling in gathering some of the . . . information" collected in the census for purposes unrelated to congressional apportionment. *Id.*

Responding to that request, Congress enacted § 195, which initially provided that, "'[e]xcept for the determination of population for apportionment purposes, the Secretary may, where he deems it appropriate, authorize the use of the statistical method known as "sampling" in carrying out the provisions of this title.'" *Id.* (alteration in original) (quoting 13 U.S.C. § 195 (1970)). That provision gave the Secretary discretion "to authorize the use of sampling procedures in gathering supplemental, *nonapportionment* census information regarding population, unemployment, housing, and other matters collected in conjunction with the decennial census—much of which is now collected through what is known as the 'long form.'" *Id.* at 336-37 (emphasis added). Section 195 did not, however, "authorize the use of sampling procedures in connection with apportionment of Representatives." *Id.* at 337.

A House Report issued at the time of § 195's enactment in 1957 confirms that the language referring to the apportionment count prohibits the Bureau from using anything "less than a complete enumeration" in conducting that portion of the census. H.R. Rep. No. 85-1043, at 10 (1957) (quoted in Administrative Record ("AR") at C01219, *Utah* v. *Evans*, No. 2:01-CV-292G (D. Utah filed July 11, 2001)). That report also pointed out that a requirement of a "complete enumeration" is necessarily "implied by the word 'census,'" and thereby suggested that—even prior to the enactment of § 195—an apportionment count based on "anything less than a complete enumeration" would have been unlawful. *Id.* Citing that report, the Bureau later suggested that § 195's prohibitive language was not new, but rather the statutory embodiment of what it described as the "'historical precedent of using the "actual Enumeration" for purposes of apportionment.'" 525 U.S. at 340 (quoting 45 Fed. Reg. 69,366, 69,732 (Oct. 20, 1980)).

Another significant change occurred in 1964, when "Congress repealed former § 25(c) of the Census Act, which

had required that each enumerator obtain 'every item of information' by personal visit to each household." *Id.* at 337 (citation omitted). The repeal of that requirement authorized the Bureau "to replace the personal visit of the enumerator with a form delivered and returned via the Postal Service." *Id.* Thereafter, households that "failed to return census forms" through the mail were enumerated through "follow up" visits conducted by census enumerators. *Id.* Thus, although the new legislation authorized the Bureau "to conduct a portion of the census through the mail, there was no suggestion from any quarter that this change altered the prohibition in § 195 on the use of statistical sampling in determining the population for apportionment purposes." *Id.*

In 1976, Congress amended § 195 to its current form, which provides that, "[e]xcept for the determination of population for purposes of apportionment of Representatives in Congress among the several States, the Secretary shall, if he considers it feasible, authorize the use of the statistical method known as 'sampling' in carrying out the provisions of this title." 13 U.S.C. § 195. As this Court established in *House of Representatives*, the section "maintains its prohibition on the use of statistical sampling in calculating population for purposes of apportionment." 525 U.S. at 339.

2. **The Statistical Procedure At Issue In *House of Representatives* Decision.** In 1997, the Bureau identified what it described as "the problem of 'undercount' in the decennial census":

> For the last few decades, the Bureau has sent census forms to every household, which it asked residents to complete and return. The Bureau followed up on the mailing by sending enumerators to personally visit all households that did not respond by mail. Despite this comprehensive effort to reach every household, the Bureau has always failed to reach—and has thus failed to count—a portion of the population.

Id. at 322. The Bureau's response to that problem was to propose the use of random sampling to estimate the number of individuals who could not be counted through traditional enumeration procedures. Under that procedure, which was later addressed in *House of Representatives*, the Bureau planned to limit its follow-up efforts for non-responding households to a randomly selected subset of all non-responding units in each neighborhood or "census tract." See *id.* at 324. The Bureau planned to use information gathered from the randomly sampled units in each tract to "estimate the [occupancy] characteristics [of each] of the remaining" non-responding units in the same tract for which it had no information. *Id.* at 325. As the Court noted, this procedure was designed in part to address the fact that "[s]ome identifiable groups—including certain minorities, children, and renters—have historically had substantially higher undercount rates than the population as a whole." *Id.* at 322-23.

While the Bureau had not yet settled on a precise methodology for creating these estimates when this Court issued its ruling in *House of Representatives*, the Administrative Record compiled by the appellees in this case indicates that the Bureau would have assumed that each unenumerated unit had the same occupancy characteristics as its geographically closest sampled neighbor or "donor." See Robert E. Fay, *Theory and Application of Nearest Neighbor Imputation in Census 2000*, 1999 Proc. for the Sec. on Surv. Res. Methods, Am. Stat. Ass'n 112, 113-14, 116 (AR at C01647-C01656). The Bureau planned to estimate roughly 10% of the population using this technique. JA 49.

This Court invalidated that procedure. It held, without qualification, that § 195 prohibits the use of all statistical "sampling" in the apportionment count. 525 U.S. at 340. Thus, because the Bureau's procedure was a form of "sampling," the Court held that it violated § 195.

3. **The Statistical Procedure at Issue Here.** Having failed in its effort to deal with the undercount through random

sampling, the Bureau fell back on another approach, known as "hot-deck imputation." Unlike the random sampling method invalidated in *House of Representatives*, however, it is undisputed that hot-deck imputation was *not* designed to address the differential undercounting of traditionally underrepresented demographic groups. JA 52 n.8.

Prior to employing this methodology in the 2000 Census, the Bureau conducted various "non-response follow-up" procedures in an attempt to visit every address on its "Master Address File"[1] for which the Bureau did not receive a completed census questionnaire by mail. Specifically, census enumerators were directed to make up to six visits to each such address (either by telephone or through a personal visit) to complete missing census questionnaires. Enumerators were also instructed to attempt to identify any addresses that represented vacant housing units, or that did not identify existing housing units at all, but instead represented vacant property, demolished buildings, business establishments, or other non-residential structures. *Id.* at 42. At the conclusion of the non-response follow-up process, non-responding units that the Bureau had neither fully enumerated nor declared vacant or non-existent were assigned an "unknown" status.

The Bureau then used "hot-deck imputation" to estimate the occupancy characteristics of all such units. Specifically, as it intended to do in connection with the random sampling procedure invalidated in *House of Representatives*, the Bureau assumed that each estimated unit had the same occupancy characteristics as a nearby sample or "donor" unit. The unit selected as the donor was the estimated unit's geographically closest neighbor of the same type (*i.e.*, apartment or single-family dwelling) that did not return a

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[1] The "Master Address File" is a comprehensive list of all known or potential housing units within the United States, which is created with the assistance of the United States Postal Service, other federal agencies, tribal, state, and local governments, and community organizations. *See* JA 40-41.

census questionnaire but was enumerated during the non-response follow-up process. See JA 43, 50-51.

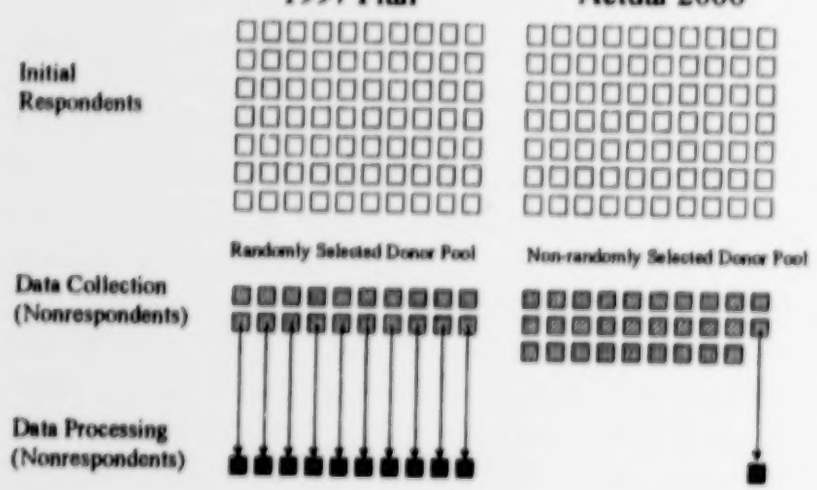
The Bureau used imputation in three distinct contexts in the 2000 census: (a) "household size imputation," in which enumerators determined that a particular unit was occupied, but could not ascertain a specific count; (b) "occupancy imputation," in which enumerators were unable to determine whether the unit was even occupied; and (c) "status imputation," in which enumerators were unable to determine whether an address on the Master Address File even represented an existing housing unit. Federal Defs.' Mem. in Opposition to Summ. J. ("DOJ Mem.") at 22 ¶ 12, *Utah* v. *Evans*, No. 2:01-CV-292G (D. Utah filed July 11, 2001). In all three contexts, the Bureau used the same statistical procedure to assume into existence theoretical or "phantom" persons, and then to add them to the apportionment count.

While the assumption that such individuals exist is speculative as to all three categories, it is particularly so with regard to status imputation. Indeed, the Bureau's only basis for concluding that status-imputed housing units exist at all is the presence of an address on the Master Address File, which concededly contains a large number of addresses that do not represent housing units. While it is supposed to consist entirely of residential addresses, the Master Address File is known to contain addresses for businesses, storage units, and other erroneously included information. See AR at C01585.

Although household size imputation and occupancy imputation have been used in the apportionment count since 1960 (and have affected apportionment only once, in 1980), status imputation made its debut in the 2000 census. See JA 40-45 & n.4. Thus, although the Bureau had estimated phantom persons deemed to reside in housing units that were known to exist (and in some instances, were known to be occupied) prior to the 2000 census, it had not previously purported to estimate phantom residents of phantom housing units. *Id.* at 46.

These phantoms collectively comprised 0.4% of the apportionment count in the 2000 census, which was more than enough to affect the allocation of Representatives. Critical to this case, it is undisputed that if the Bureau had not used imputation—or even if it had not expanded its use of the procedure to include status imputation—Utah would have been entitled to a fourth Representative. *Id.* at 55-56.

4. **Comparison of the Two Procedures**. Although the Bureau used hot-deck imputation to estimate a smaller portion of the overall population than it planned to estimate using the random sampling procedure invalidated in *House of Representatives*, the two procedures are similar in principle and practical effect. The similarities between the two procedures are illustrated by the following diagram:



The left column represents the procedure invalidated in *House of Representatives*. The right column represents the hot-deck imputation procedure used in the 2000 census. Both columns contain a total of 100 boxes, each of which represents one housing unit in a hypothetical census tract consisting of 100 units. The 70 white boxes in each column

represent units whose occupants completed census questionnaires and returned them to the Bureau through the mail. (In a typical tract, roughly 70% of the population is expected to respond by mail, see 525 U.S. at 324.) The shaded boxes represent units enumerated by the Bureau during the non-response follow-up process, or what might be described as the "data collection" stage of each procedure. The black boxes represent units whose occupants were (or would have been) estimated during the "data processing" stage of each procedure.

The 20 shaded boxes in the left column represent those units in this hypothetical tract that the Bureau would have selected randomly for inclusion in the non-response follow-up process. The Bureau then would have visited and enumerated each of those units, which would have collectively comprised the "donor pool," or set of units from which the Bureau selected individual "samples" to estimate the remaining unenumerated units. Specifically, the Bureau would have assumed that each of the unenumerated units, depicted by the ten black boxes, had the same occupancy characteristics as its geographically closest neighbor or "donor" that was randomly selected for inclusion in the non-response follow-up process. See *supra* at 6. Stated differently, in each instance, the Bureau would have imputed to the unobserved household the occupancy characteristics of the donor or "sample" household, represented in the diagram by a line running from the donor household to the estimated household. The estimates produced by this method would have comprised roughly 10% of the apportionment count. 525 U.S. at 324.

The 29 shaded boxes in the right column represent the housing units in the hypothetical tract that were actually enumerated during the Bureau's non-response follow-up process in the 2000 census. Again, the units enumerated during the non-response follow-up process collectively comprised the "donor pool," or set of units from which the Bureau selected individual "samples" to estimate

unenumerated units. The black box represents a single non-responding unit in the hypothetical tract whose existence and/or occupancy characteristics the Bureau failed to establish during the non-response follow-up process. Using hot-deck imputation, the Bureau assumed that each such unit had the same occupancy characteristics as a nearby donor or "sample"—the estimated unit's geographically closest neighbor whose occupants were enumerated during the non-response follow-up process. Estimates produced by that process amounted to roughly 0.4% of the apportionment count (rounded up to one in the example).

As the diagram demonstrates, the imputation procedure used in the 2000 census differed from the sampling proposal at issue in *House of Representatives* in two respects. First, imputation was used to produce estimates on a smaller scale and only with respect to units that the Bureau, after six visits, was not able to enumerate. Second, the units in the donor pool were not randomly selected; instead, under hot-deck imputation, potential donors were chosen because they were successfully enumerated during non-response follow-up.

5. **The Decision And Opinions Below.** Utah's complaint alleged that hot-deck imputation deprived Utah of a fourth Representative and that it is unlawful under the Census Act and Census Clause. Utah sought declaratory and injunctive relief directing the Bureau to remove all imputation-derived estimates from the apportionment count, and to submit a corrected apportionment tabulation to the President. The State of North Carolina and several of its officers and representatives intervened as defendants soon after the case was filed. All parties moved for summary judgment.

Utah advanced two principal claims. First, Utah showed that, like the procedure invalidated by this Court in *House of Representatives*, imputation is a statistical tool used to estimate unobserved segments of the population by reference to observed segments or "samples" of the population. Thus, Utah asserted that imputation is a form of "sampling" that is

invalid under § 195 of the Census Act. Second, Utah showed that hot-deck imputation is incompatible with the constitutional prescription of an "actual enumeration" of each State's population, which contemplates an actual count and not an estimate of phantom numbers.

The three-judge district court issued a divided opinion granting summary judgment for defendants and dismissing Utah's claims. As to Utah's statutory claim, the majority reasoned that "statistical sampling and imputation are separate statistical methodologies." JS App. 18a. In reaching that conclusion, the majority relied almost entirely on the reasoning employed in *Orr* v. *Baldrige*, No. IP-81-604-C, slip op. at 5-7 (S.D. Ind. July 1, 1985), despite the fact that the parties to that litigation had inexplicably stipulated to the validity of the procedure under § 195, and therefore had neither briefed nor argued that issue. JS App. 18a-20a.

The majority below apparently defined the term "sampling" as "the technique of determining the traits of the entire population by collecting and analyzing data" from a *randomly* drawn, representative sample of that population. JS App. 20a. It did so by defining the word "sample" as a "'subset of units from a larger population'" selected in such a way that "'each unit of th[at] population has a known chance of selection.'" *Id.* at 19a (quoting *Orr*). Citing no authority, and offering no explanation for its analysis, it also concluded that "sampling is a statistical methodology utilized at the data collection stage" of statistical sampling, "while imputation is a distinct statistical methodology utilized at the data processing stage." *Id.* at 21a. Thus, the district court suggested that § 195's prohibitive scope extends only to what might be called "premeditated" sampling, *i.e.*, sampling procedures in which "only . . . pre-identified persons or housing units are contacted for the purpose of data collection." *Id.* Because hot-deck imputation was a form of non-random sampling and (in the district court's view) was conducted at the "data processing" stage of the analysis, the district court concluded that the

Bureau's use of hot-deck imputation in the 2000 census survived under § 195. *Id.*

The majority also rejected Utah's claims under the Census Clause. Dismissing Utah's constitutional claim as an "effort to ascribe some exalted meaning to 'actual enumeration,'" JS App. 25a, the district court concluded that the "constitutional requirement of an enumerative census was simply to distinguish that process from the conjectural apportionment of the first Congress." *Id.* at 26a. Judge Greene dissented. He concluded that the Bureau's use of hot-deck imputation, in both substance and effect, constitutes sampling under § 195, as interpreted by this Court in *House of Representatives*. See *id.* at 28a-34a. He noted that the Bureau has previously defined sampling as occurring "'whenever the information on a portion of the population is used to infer information on the population as a whole.'" *Id.* at 30a. He also found imputation to be "indistinguishable" from the type of sampling at issue in *House of Representatives* "because both use a portion of the population to infer information concerning segments of the population in order to arrive at final figures concerning the population as a whole." *Id.* at 33a.

SUMMARY OF ARGUMENT

Throughout most of our nation's history, the fundamental distinction between a statistical estimate and the "actual enumeration" required by the Census Clause and implemented in the Census Act has been a point of universal agreement. The Framers understood the difference between an actual enumeration and a mere estimate of population, and even acknowledged that the former would result in an undercount. Yet, in both the Constitution and the first Census Act, the Framers expressly rejected any enumeration based in whole or in part on estimates—requiring an "actual enumeration" through individual visits by census enumerators. They did so, not out of naivete, but to maintain

an objective standard for apportionment and to minimize the risk of political manipulation.

As this Court recognized in *House of Representatives*, subsequent versions of the Census Act have followed this same approach. "From the very first census, the census of 1790, Congress has prohibited the use of statistical sampling in calculating the population for purposes of apportionment." 525 U.S. at 335. Initially, this prohibition was implicit in the method of enumeration prescribed by Congress: Congress consistently "requir[ed] enumerators to 'visit personally each dwelling house in his subdivision' in order to obtain 'every item of information and all particulars required for any census or survey' conducted in connection with the census." *Id.* at 336.

Section 195 was Congress's "first departure from the requirement that the enumerators collect all census information through personal visits to every household." *Id.* When first enacted in 1957, this section provided that "[e]xcept for the determination of population for apportionment purposes, the Secretary may, where he deems it appropriate, authorize the use of the statistical method known as 'sampling.'" 13 U.S.C. § 195 (1970). In 1976, Congress amended § 195 by "changing the phrase 'may, where he deems it appropriate' to 'shall, if he considers it feasible.'" 525 U.S. at 338-39.

The Bureau sought refuge under this amended provision in its 1997 proposal to enumerate only 90% of the population and to estimate the remainder using random sampling. In *House of Representatives*, this Court held this proposal invalid under the Census Act. Although the Court recognized that the statute was somewhat ambiguous, the Court held that the ambiguity was resolved by the historical context of the Census Act—that in light of the longstanding requirement of personal visits by census enumerators, Congress could not be assumed to have intended to permit the use of sampling in the apportionment count. *Id.* at 340. Thus, this Court held that "the section maintains its prohibition on the use of statistical

sampling in calculating population for purposes of apportionment." *Id.* at 339.

In light of this background, and in light of the plain language of both the Census Act and the Census Clause, the Bureau's method of hot-deck imputation cannot withstand scrutiny under the statute or under the Constitution.

I. First, imputation is as much a method of "sampling" prohibited by § 195 as the procedure struck down in *House of Representatives*. Prior to this litigation, the Bureau expressly acknowledged that "sampling" is generally understood to include any statistical procedure in which "information on a portion of a population is used to infer information on the population as a whole." Bureau of the Census, *Report to Congress: The Plan for Census 2000*, at 23 (Aug. 1997) ("*Census 2000 Report*") (AR at C00155). Moreover, that common-sense understanding of the statutory term finds consistent support in contemporaneous statistical texts and other publications.

Imputation is unquestionably a form of "sampling" under this definition. It is undisputed that imputation is a statistical procedure in which "information on a portion of" a State's population—namely, the so-called "donor" household—is used to infer information about unobserved segments of the "population" and, hence, about the population as a whole.

The district court's attempts to avoid this conclusion were based on a hair-splitting analysis that cannot withstand scrutiny. These included the suggestion that § 195's prohibition extends only to "random" sampling, and that it prohibits only sampling that is built into the Bureau's "data collection" efforts and is in that sense premeditated.

Both of these limitations are flatly contrary to the statutory language, and in any event are foreclosed by the historical context discussed by this Court in *House of Representatives*. At the time § 195 was enacted, Congress had long foreclosed the use of "'estimates based on sampling or other statistical

procedures, no matter how sophisticated,'" 525 U.S. at 340. Congress did not attempt to draw any such fine distinctions between forbidden and authorized forms of "sampling" in this context.

Moreover, because imputation is substantively indistinguishable from the sampling procedure invalidated in *House of Representatives*, acceptance of either of these limitations would nullify the statutory prohibition and easily permit the Bureau to evade the holding in that case. Congress simply did not intend a statutory prohibition that could be so easily evaded, particularly on the grounds offered by the majority below.

Finally, the Bureau's methods of "occupancy imputation" and "status imputation" are unlawful even under the standards adopted by the district court below and by the dissenting opinions in *House of Representatives*. Although the district court insisted that it could not invalidate the Bureau's use of hot-deck imputation because that would "[f]orc[e] [the Bureau] to ignore" what it described as "valid residences," JS App. 25a, that standard would justify only household size imputation. And it would condemn occupancy and status imputation inasmuch as addresses subjected to those methods are not known to represent occupied units.

Occupancy and status imputation are similarly unlawful under the reasoning offered by Justices Breyer and Stevens in their respective dissenting opinions in *House of Representatives*. These methods cannot plausibly be considered means of "fill[ing] gaps in the headcount" because no one even knows if the addresses at issue correspond to housing units or, if so, whether those units are occupied. By the same token, the Bureau's use of occupancy and status imputation cannot be defended on the basis that those procedures make the census more accurate.

II. Even if there were any ambiguity as to the scope of the statute, that ambiguity should be resolved in a way that would

avoid the serious constitutional problems presented by the Bureau's method of imputation. The Census Clause's prescription of an "actual enumeration" prohibits any and all methodologies that rely upon an estimate of a portion of the population, rather than an actual count. The correctness of that conclusion is amply demonstrated, not only by the textual and historical evidence before the Court in *House of Representatives*, but by a wealth of additional evidence from the Founding period. That evidence—most of which was not before the Court in *House of Representatives*—confirms not only that the founding-era dictionary meaning of an "actual enumeration" contemplates an actual count and not an estimate, but also that the constitutional language was a well-worn term of art used consistently during this period to make this very distinction.

The district court avoided the plain language of the Census Clause by insisting that the Framers aspired only for accuracy and did not intend to prescribe a census methodology. The historical record, however, proves otherwise. Delegates to the Constitutional Convention expressly intended to adopt a "rule" that was "fixt" and "permanent and precise," and they understood the prescription of an actual enumeration to do just that. James Madison, for example, recognized that there was "difficulty" and "trouble" in conducting an actual enumeration, but nonetheless concluded that this was "the way required by the Constitution." Washington and Jefferson expressed the same understanding. Although they indicated an ability and an incentive to supplement the enumeration returns with estimates, they acknowledged that they were bound by the official census returns. In sum, "actual enumeration" was not merely a euphemism for "accuracy," it was a command to follow a "fixt" process to achieve a specific count.

Thus, if the original understanding of the Census Clause is to be preserved, the Bureau's hot-deck imputation procedure,

which is unquestionably a method of estimation rather than enumeration, must be invalidated.

ARGUMENT

I. THE CENSUS ACT'S PROHIBITION OF "SAMPLING" ENCOMPASSES NON-RANDOM, NON-PREMEDITATED SAMPLING METHODS LIKE IMPUTATION.

As in *House of Representatives*, the issue of statutory interpretation in this case turns on the meaning of § 195 of the Census Act. Here, the question is whether hot-deck imputation is a form of the "statistical procedure known as 'sampling'" prohibited by that section. The Bureau concedes that the challenged method is a "statistical procedure," but contends that it is not a form of "sampling." As shown below, however, no reasonable construction of the statutory language can support the Bureau's use of hot-deck imputation in the 2000 census. Moreover, even if the statute could be tortured to condone the Bureau's use of "household size" imputation, it could not justify the use of "status" and "occupancy" imputation, which focus on addresses and dwelling units not even known to exist or to be occupied, much less known to house a certain number of real people.

A. All Forms Of Hot-Deck Imputation Violate The Census Act.

As the Bureau itself expressly acknowledged prior to this litigation, the term "sampling" is generally understood to include any statistical procedure in which "information on a portion of a population is used to infer information on the population as a whole." *Census 2000 Report* at 23 (AR at C00155); *accord* Maurice G. Kendall & William R. Buckland, *A Dictionary of Statistical Terms* 254 (1957) (defining a "sample" as "[a] part of a population, or a subset from a set of units, which is provided by some process or other, usually by deliberate selection with the object of investigating the properties of the parent population or set").

Moreover, as this Court held in *House of Representatives*, § 195 prohibits, without qualification or exception, "the use of sampling in calculating the population for purposes of apportionment." 525 U.S. at 340.

Given this clear-cut definition and this Court's prior holding, it is difficult to understand how the Bureau or the court below could conclude that hot-deck imputation survives under § 195. After all, it is undisputed that imputation is a statistical procedure in which "information on a portion of" a State's population—namely, the so-called "donor" household—is used to infer information about unobserved segments of the "population" and that leads to a conclusion about the population as a whole.

Nevertheless, the district court, at the Bureau's urging, sought to escape this obvious outcome by adopting narrow limitations on the statutory term "sampling." Specifically, the court attempted to limit that term—and hence this Court's holding in *House of Representatives*—to what is known in the field as "random sampling," *i.e.*, statistical techniques that involve the "'selection of a subset of units from a larger population in such a way that each unit of the population has a known chance of selection.'" JS App. 19a. Alternatively, the district court, like the Bureau in its Motion to Affirm, attempted to limit the statutory term to what might be called "premeditated" sampling, *i.e.*, procedures in which "[o]nly . . . pre-identified persons or housing units are contacted for the purpose of data collection." *Id.* at 21a.

Neither of these proposed limitations on the statutory term withstands analysis. As demonstrated below, both are flatly contrary to the statutory language, as reflected in contemporaneous definitions embraced in the Bureau's own documents and in statistics dictionaries and texts, and confirmed by the historical context discussed by this Court in *House of Representatives*. Moreover, because imputation is in principle and practical effect no different from the sampling procedure invalidated in *House of Representatives*,

acceptance of either of these limitations would nullify the statutory prohibition and easily permit the Bureau to evade the holding in that case.

1. In its 1997 report to Congress outlining its failed plan to use random sampling in the 2000 census, the Bureau explained that "'sampling' occurs whenever the information on a portion of a population," that is, a "sample," is "used to infer information on the population as a whole." *Census 2000 Report* at 23 (AR at C00155). The Bureau further explained that "a 'sample' is taken whenever the whole is represented by less than the whole." *Id.* Thus, under the Bureau's own definitions, the term "sampling" refers to the two-step process of (1) using "'information on a portion of a population'" or "sample" to (2) "'infer information' about unobserved portions of the same population," JA 48 (quoting *Census 2000 Report* at 23 (AR at C00155)), thereby enabling the observer to make conclusions about "the population as a whole." *Census 2000 Report* at 23 (AR at C00155).[2]

[2] This same common-sense definition was embraced by the Bureau (albeit inconsistently) in the proceedings below. Utah filed a Statement of Undisputed Facts with the district court that noted the parties' agreement on this definition. JA 47-48. The Bureau's initial submissions, while purporting to reject Utah's definition, made that agreement clear. DOJ Mem. 38 n.18 ("'A sampling method is a method of selecting a fraction of the population in a way that the selected sample represents the population.'") (quoting Pandurang V. Sukhatme, *Sampling Theory of Surveys With Applications* 9 (1954)); *see also* DOJ Mem. 37 ("'A sample may, in the vernacular, refer to any subset of units provided by any arbitrary process.'") (quoting AR at C01167-68). Although the Bureau eventually sought to modify its conception of sampling when it became clear that the agreed-upon definition encompassed imputation, *see* Defs.' Reply Mem. in Support of Their Mot. to Dismiss at 10-11 ¶¶ 24, 26, *Utah v. Evans*, No. 2:01-CV-292G (D. Utah filed Aug. 14, 2001), its initial concession to the common-sense definition set forth above is telling.

Moreover, the Bureau's inconsistent interpretations of the statutory term, both in this case and previously, preclude any claim for deference to its construction of the statute. *See* 525 U.S. at 340-41.

Moreover, the common-sense definition embraced by the Bureau is consistent with the usage of the term in countless statistical dictionaries, journals, textbooks, and other publications. Statisticians writing near the time § 195 was enacted defined a "sample" as "[a] part of a population, or a subset from a set of units, which is provided by some process or other . . . with the object of investigating the properties of the parent population or set." Maurice G. Kendall & William R. Buckland, *A Dictionary of Statistical Terms* 254 (1957).[3] In other words, "sampling" is understood as "the selection of part of an aggregate of material to represent the whole." Frank Yates, *Sampling Methods for Censuses and Surveys* 1 (3d ed. 1953). Thus, whereas a "census" "must by definition, be complete," a "sample" is a survey of "less than 100 per cent" of the relevant population. W. Edwards Deming & Frederick F. Stephan, *On the Interpretation of Censuses as Samples*, 36 J. Am. Stat. Ass'n 45, 45 (1941).

The Bureau's hot-deck imputation procedure is unmistakably a form of sampling under the definition put forward by the Bureau itself and embraced in the field of statistics. It results in a count in which "the whole is represented by less than the whole." Specifically, information on a portion of the population—the "donor" households—is used to make inferences about unobserved portions of the population, namely, those classified as "unknown." Thus, in a particular census tract, the "whole" population of that tract is represented by an actual count of "less than the whole" because the final count includes estimates of units not

[3] *Accord* Tommy Wright, *Selected Moments in the Development of Probability Sampling: Theory and Practice*, 13 Am. Stat. Ass'n Surv. Res. Methods Sec. Newsltr. 1 (July 2001) ("When examination of each and every unit in the population . . . is undesirable or impractical, a *sample*, *i.e.*, a subset or portion of the population, may be selected to yield satisfactory information."); Raymond J. Jessen, *Statistical Survey Techniques* 13 (1978) ("If we confine our observations to anything fewer than all the elements of the universe in which we are interested, we shall say we are using a *sample*.").

counted. Accordingly, there can be no doubt that the hot-deck imputation used in the 2000 census is a form of sampling. See *House of Representatives*, 525 U.S. at 324-25.

Indeed, the Bureau itself implicitly advanced this very position in the *Census 2000 Report*. There, the Bureau discussed "imputation" as the first of several examples under the subheading "Reliance on Sampling in Previous Censuses." *Census 2000 Report* at 23 (AR at C00155). Thus, in an attempt to persuade Congress to accept the sampling proposal described in the Report, the Bureau obviously attempted to give Congress the impression (quite correctly) that it was already engaged to some extent in "[r]eliance on [s]ampling" in the apportionment count, by virtue of hot-deck imputation.

Although the Bureau now struggles to distance itself from that concession, its creative backtracking must be rejected as contrary to the plain language of the statute. The clear-cut definitions adopted in the Bureau's own documents and confirmed by the above statistical texts admit of no limitation to "premeditated" or "random" methods of sampling.[4] Thus, the Court should construe the statute in accordance with its plain language and decline to embrace limitations not enacted by Congress. See, *e.g.*, *EEOC* v. *Arabian Am. Oil Co.*, 499

[4] Moreover, the notion that the term "sampling" refers only to random sampling procedures is contrary to the established meaning of that term. Statistical textbooks, dictionaries, and other scholarly publications use the term "sampling" to refer to random *and* non-random sampling procedures alike. *See* Frederick F. Stephan, *History of the Uses of Modern Procedures*, 43 J. Am. Stat. Ass'n 12, 20 (1948) ("modern sampling practice rests on processes of selecting individuals at random *or* according to certain systematic procedures") (emphasis added); Gary T. Henry, *Practical Sampling* 17 (Applied Social Research Methods Series Vol. 21, 1980) ("Approaches to sample selection fall into two broad categories: probability [or random] *and* nonprobability sampling.") (emphasis added); Arlene Fink, *How to Sample in Surveys* 17 (1995) ("Nonprobability samples are created because the units appear representative or because they can be conveniently assembled.").

U.S. 244, 255 (1991) (rejecting an argument that the term "employer," as used in Title VII, "means only, 'American employer'").

2. Even if there were any doubt as to the meaning of the statute, any such ambiguity, as this Court held in *House of Representatives*, must be resolved by evaluating the statutory provision against "the historical background of the decennial census and the Act that governs it." 525 U.S. at 335. As in *House of Representatives*, the historical context relevant here "is provided by over 200 years during which federal statutes have prohibited the use of statistical sampling where apportionment is concerned." *Id.* at 340.

Although § 195 was not enacted until 1957, this Court recognized in *House of Representatives* that Congress has forbidden the use of methods of estimation since the founding era: "From the very first census, the census of 1790, Congress has prohibited the use of statistical sampling in calculating the population for purposes of apportionment." *Id.* at 335. Throughout most of the history of the Census Act, this prohibition was implicit in the method of enumeration prescribed by Congress: Congress consistently "requir[ed] enumerators to 'visit personally each dwelling house in his subdivision' in order to obtain 'every item of information and all particulars required for any census or survey' conducted in connection with the census." *Id.* at 336 (quoting Act of Aug. 31, 1954, § 25(c), 68 Stat. 1012, 1015).

Section 195 was Congress's "first departure from the requirement that the enumerators collect all census information through personal visits to every household." *Id.* When first enacted in 1957, this section provided that "[e]xcept for the determination of population for apportionment purposes, the Secretary may, where he deems it appropriate, authorize the use of the statistical method known as 'sampling.'" 13 U.S.C. § 195 (1970). Although Congress amended § 195 in 1976 by "changing the phrase 'may, where he deems it appropriate' to 'shall, if he considers it feasible,'" 525 U.S. at

338-39, this Court concluded in *House of Representatives* that "the section maintains its prohibition on the use of statistical sampling in calculating population for purposes of apportionment." *Id.* at 339-40.

In so doing, the Court recognized that the structure of the statute left some ambiguity as to whether it was intended "as either permissive or prohibitive with regard to the use of sampling for apportionment purposes." *Id.* at 339. It held, however, that the ambiguity was resolved by the historical background noted above. Specifically, the Court held that, in light of the longstanding requirement of personal visits by census enumerators (a requirement that remained on the books until after the initial enactment of § 195), the Court could not assume that Congress intended to permit the use of sampling in the apportionment count. *Id.* at 340.

The historical context of the Census Act similarly forecloses the creative distinctions put forward by the Bureau and embraced by the majority below. In fact, in 1957, when Congress first authorized the use of "sampling" for non-apportionment purposes in enacting § 195, the Bureau was still required to gather population data by the exclusive method of personal visits by census enumerators. Thus, when Congress first used the term "sampling" in the Census Act, it surely did not have in mind a narrow conception of that term that would permit the use of last-resort, non-random methods of estimation like hot-deck imputation.

Indeed, a House Report issued at the time of the statute's 1957 enactment confirms that the Congress that enacted § 195 did not contemplate any fine distinctions based on the "premeditated" or "random" nature of the sampling at issue. Specifically, the report explained that:

> The purposes of section 195 in authorizing the use of sampling procedures is to permit the utilization of *something less than a complete enumeration*, as implied by the word 'census,' when efficient and accurate

> coverage may be effected through a sample survey. Accordingly, except with respect to apportionment, the Secretary of Commerce may use sampling procedures when he deems it advantageous to do so.

H.R. Rep. No. 85-1043, at 10 (quoted in AR at C01219) (emphasis added).

In short, when Congress enacted § 195, it was legislating against the backdrop of a longstanding requirement of "a complete enumeration" unaided by any statistical adjustment of any sort. Its authorization of "sampling" for non-apportionment purposes was meant only to relax the requirement of a complete enumeration by means of personal visits. Congress plainly did not intend to authorize sampling of any sort in the apportionment count, much less to draw the hair-splitting distinctions embraced by the majority below.

3. Finally, the district court's narrow limitations on the statutory prohibition must be rejected on the ground that they threaten to nullify the statutory prohibition as well as this Court's decision in *House of Representatives*. Imputation has the same practical effect as the random sampling method struck down in that decision; the two methods cannot meaningfully be distinguished from each other on either of the grounds suggested by the district court. Accordingly, if the district court's decision stands, the Bureau will be free, in the future, to use imputation to achieve precisely the result it sought to achieve using the method invalidated in *House of Representatives*. Congress could not have intended to enact a meaningless prohibition that is so easily nullified.

a. As noted earlier, the sampling procedure in *House of Representatives* was designed "to supplement data obtained through traditional census methods." 525 U.S. at 324. Specifically, the Bureau planned to use "information gathered from the . . . housing units" in each census tract that the Bureau visited during the non-response follow-up process "to estimate the size and characteristics of the nonresponding

housing units [in the same tract] that the Bureau did not visit." *Id.* at 325. It is undisputed that the same is true of hot-deck imputation.

Moreover, as shown in the diagram above, see *supra* at 9, hot-deck imputation has the same practical effect as the random sampling method at issue in *House of Representatives*. First, in both cases, a "sample" is selected from a donor pool. Under the Bureau's proposed random sampling method, as depicted in the left column of the diagram, the donor pool consists of the 20 housing units that the Bureau selects randomly from among the 30 non-responding units. After exhausting its non-response follow-up efforts with respect to all 20 units, the Bureau selects ten of those units as samples—each by virtue of its geographic proximity to one of the ten remaining units. With hot-deck imputation (as depicted in the right column), by contrast, the 29 non-responding units are selected (non-randomly) for inclusion in the donor pool because, for whatever reason, they were successfully enumerated during the non-response follow-up process. A single unit from that donor pool is then selected as the sample, again by reference to its geographic proximity to a single unenumerated unit.

Second, information from the sample is used to estimate the characteristics of the unobserved portion of the population. In the case of the random sampling method at issue in *House of Representatives*, information from each sample (*i.e.*, each of the ten households enumerated during the non-response follow-up process that was selected by virtue of its proximity to an unenumerated unit) is used to estimate the characteristics of one of the ten households that were excluded from that process. With hot-deck imputation, information from the sample (*i.e.*, the unit selected from the donor pool by reference to its proximity to an unenumerated unit) is used to estimate the characteristics of the one unit whose occupancy characteristics could not be determined through the Bureau's follow-up efforts.

Thus, as a practical matter, the only difference between the two procedures is that the random sampling procedure is used to estimate a larger percentage of the population. But that difference is as legally irrelevant as it is practically fortuitous. For example, under the method invalidated in *House of Representatives*, the Bureau could have decided to "scale down" the use of sampling by choosing to estimate the characteristics of only one percent (or, as in this case, 0.4%) of the population, rather than ten percent. Under this Court's decision, the method would still have constituted unlawful sampling. Indeed, the Court expressly held that the *extent* of the Bureau's reliance on statistical sampling has no bearing on the lawfulness of that conduct under § 195. See 525 U.S. at 342 ("[w]hether used as a 'supplement' or as a 'substitute,'" sampling cannot be used in determining the apportionment count).

Alternatively, the Bureau could decide to "scale up" its use of the hot-deck imputation method at issue here so as to estimate the same percentage of the population that it proposed to estimate by the method struck down by this Court. All the Bureau would have to do is to stop its non-response follow-up efforts once it has reached all but ten percent of the population. It could then use the nearest enumerated neighbor of each remaining household to estimate that household's occupancy. Congress could not have intended to adopt such a meaningless prohibition on sampling that could be so easily evaded.

b. Nor can a statistical procedure's lawfulness depend on whether it uses "random" or "non-random" sampling. As noted above, if hot-deck imputation were upheld on the ground that § 195 does not extend to non-random methods of estimation, the Bureau could easily expand its use of that method to estimate increasingly larger portions of the population—up to and even exceeding the 10% it planned to estimate using the procedure at issue in *House of Representatives*. The Bureau could accomplish that result,

not only by deciding to cease its follow-up efforts once it has obtained hard data on all but a certain percentage of the addresses in the tract, but also by devoting fewer resources to the non-response follow-up process (*e.g.*, making only one follow-up visit instead of six), or by making it more difficult for census enumerators to remove invalid addresses from the Master Address File. Both of those adjustments would increase the number of addresses that would remain unclassified at the end of the non-response follow-up process, and thereby increase the number of housing units that would be subjected to imputation. See JA 53-55.

Under the district court's reasoning, as long as the Bureau made an initial attempt to enumerate all housing units and used non-random sample selection procedures to designate the "donor" used to estimate each nonresponding unit, there would be nothing to stand in the way of this end-run around the statute. Again, Congress could not have intended a prohibition on sampling that could be so easily evaded.

Indeed, the district court's approach would ascribe to Congress the intention not only to sanction nullification of § 195, but to do so in a particularly perverse way. The undisputed factual record establishes that non-random methods of sampling are, if anything, *less* reliable than random methods. JA 51-53. Both forms of sampling rely on the assumption that non-responding housing units are "similar" to neighboring donor units used to estimate their occupancy characteristics. And that assumption was arguably defensible under the Bureau's random sampling procedure because the donor units were distributed randomly among all non-respondents.

The donor units used in hot-deck imputation, by contrast, are demonstrably different from the estimated units in that the Bureau was able to enumerate the former, but not the latter, during the non-response follow-up process, even after as many as six follow-up visits. As the record below indicates, such units most reasonably can be assumed to be unoccupied

or non-existent, and thus the "donor" units, which are unquestionably occupied, are hardly representative of the estimated units.[5] See JA 51-52. Congress can hardly be deemed to have intended to prohibit relatively reliable methods of statistical sampling (like the random procedure struck down in *House of Representatives*), while preserving relatively unreliable methods of statistical sampling (like hot-deck imputation). See, *e.g.*, *United States* v. *American Trucking Ass'ns*, 310 U.S. 534, 543 (1940). To indulge such an assumption would be to deprive § 195 of any meaning.

c. Finally, the Bureau's ability to circumvent § 195 and this Court's *House of Representatives* decision cannot be meaningfully constrained on the alternative basis suggested by the district court—that "sampling" refers only to estimation methods in which the sample is "pre-identified" during the "data collection stage" of the procedure, and not to methods like hot-deck imputation that are allegedly "used only at the data processing stage." JS App. 21a. Like the district court's random/non-random distinction, this rationale would also allow the Bureau to "scale up" its use of sampling as much as it pleases, as long as it does so indirectly rather than directly—for example, by reducing the number of follow-up visits or making it more difficult to remove addresses from the Master Address File.

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[5] Again, the point may be illustrated by referring to the diagram set forth above, *supra* at 9. Under the 1997 plan struck down in *House of Representatives* (the left column), the units randomly selected for inclusion in the donor pool (the shaded boxes) would have been representative of the unenumerated units (the black boxes) that they were used to estimate. Under the method of imputation actually employed in the 2000 census (the right column), however, none of the units in the donor pool (the shaded boxes) were representative of the estimated units (the single black box). In fact, the unit represented by the black box was by definition unique: it was the one unit in the tract that could not be enumerated after six visits, and for that reason cannot fairly be assumed to have occupancy characteristics similar to those of units that *were* enumerated.

In any event, the district court's distinction is illusory. The Bureau obviously knew with absolute certainty that it would use hot-deck imputation to try to account for apparently unenumerated households, even if it did not know *where* such method would be called for. In that sense its use of this method of sampling was premeditated. Moreover, as the above diagram demonstrates, *supra* at 9, both the procedure invalidated in *House of Representatives* and the method of hot-deck imputation necessarily involve the two-step process of (1) data collection (in the form of gathering household size data from a "donor" unit as well as all of the other units for which actual data are collected) and (2) data processing (in the form of making the assumption that the unenumerated unit has the same number of occupants as the donor unit). See 525 U.S. at 324; JA 48-49. Both steps are necessarily required of any method that purports to provide estimates in place of an actual count, and this distinction is accordingly without substance.

B. At A Minimum, Occupancy And Status Imputation Plainly Violate the Census Act.

Although hot-deck imputation is categorically irreconcilable with the Census Act for the reasons explained above, the Court need not condemn all forms of imputation to rule in favor of appellants. The Bureau's methods of "occupancy imputation" and "status imputation" are particularly offensive to the statutory scheme—so much so that they are unlawful even under the standards adopted by the district court below and by the dissenting opinions in *House of Representatives*. Because it is undisputed that these methods alone cost Utah its fourth seat in the House of Representatives, see JA 55-56; Exs. A & B, Wolfson Decl., *Utah* v. *Evans*, No. 2:01-CV-292G (D. Utah filed June 11, 2001), the Court may, if it so chooses, rule in appellants' favor on the narrow ground that occupancy and/or status imputation are unlawful.

1. As already explained, the Bureau used three forms of hot-deck imputation in the 2000 census: (1) "household size imputation" to estimate the occupancy characteristics of units that it believed to be occupied, but for which the Bureau had not determined an occupancy count; (2) "occupancy imputation" to estimate units that it had not designated as either occupied or vacant; and (3) "status imputation" to generate estimates for addresses that the Bureau had not identified as representing existing housing units (*i.e.*, as opposed to demolished houses, businesses, or other non-residential properties). See DOJ Mem. 22 ¶ 12. Ironically, the majority below sought to justify imputation by relying in part on grounds that apply only to household size imputation—and that unwittingly condemn occupancy and status imputation.

Specifically, the Bureau defended its use of household size imputation by suggesting that, because units estimated through this procedure are known to contain at least one occupant, it would be unfair to assign an occupancy count of zero simply because the number of occupants is unknown. See *id.* at 24 ¶ 14 (suggesting that it would be wrong to "imput[e] '0' occupants to a household known to be occupied"); Hogan Decl. at 22 ¶ 36, *Utah* v. *Evans*, No.2:01-CV-292G (D. Utah filed July 11, 2001) ("[T]he use of count imputation furthered th[e] goal [of numeric accuracy] by imputing a nonzero value for housing units, some of which demonstrably are occupied."). The district court majority similarly argued that it could not invalidate the Bureau's use of hot-deck imputation without "[f]orcing [the Bureau] to ignore" what it described as "valid residences." JS App. 25a.

Even if this tortured effort to circumvent § 195 were accepted, it would provide no refuge for either occupancy or status imputation. Unlike units estimated through household size imputation, addresses subjected to status and occupancy imputation are *not* known to represent *occupied* units—notwithstanding the district court's confusing, cryptic assertion to the contrary (JS App. 25a n.9). By the same token, *none* of the so-called "persons" estimated through

occupancy and status imputation are known to exist, much less live at the address in question. Such persons are therefore added to the apportionment count through statistical sampling alone, and their inclusion in the apportionment count was therefore unlawful even under the standard offered by the Census Bureau and embraced by the majority below.

2. Although the majority opinion in *House of Representatives* is of course the opinion that is binding on this Court, it is also significant that the Bureau's use of status and occupancy imputation cannot be defended under either of the dissenting opinions issued in *House of Representatives*. For example, Justice Breyer suggested in his dissent that under the Census Act, the use of sampling procedures was an appropriate means of "supplement[ing] a traditional headcount," *i.e.*, "to fill in gaps in [the] headcount." 525 U.S. at 352-53 (Breyer, J., dissenting). In the same discussion, he also suggested that hot-deck imputation has been used to fill that role in the last several decennial censuses. *Id.* at 352.

Significantly, however, Justice Breyer's analysis made clear that he was referring only to household size imputation, and not to occupancy or status imputation. See *id.* ("When an enumerator *believes a residence is occupied* but is unable to obtain any information about how many people live there, the Census Bureau 'imputes' that information based upon the demographics of nearby households.") (emphasis added). Unlike household size imputation, occupancy and status imputation cannot plausibly be considered means of "fill[ing] gaps in the headcount" because no one even knows if the addresses at issue correspond to housing units or, if so, whether those units are occupied. In short, no one knows whether there is even a "head" to be counted.

Also, unlike the sampling method at issue in *House of Representatives*, status and occupancy imputation do not address the problem of counting "the last few of the *households* that do not respond by mail." *Id.* at 356 (Breyer, J., dissenting) (emphasis added). Using status imputation, the

Bureau does not know whether the addresses at issue correspond to a dwelling unit, much less an actual *household*. Cf. *The American Heritage Dictionary of the English Language* 638 (1970) (defining "household" as "[a] domestic establishment including members of a family and others living under the same roof"). Thus, when the Bureau uses status imputation, it does not know whether the address represents a "household" at all.

The same is true of occupancy imputation: Although the Bureau presumably knows that the address corresponds to a dwelling unit, it does not know whether anyone actually lives under the roof of that unit, and therefore does not know whether there is any "household" at that address.

3. For similar reasons, the Bureau's use of status and occupancy imputation is unlawful under the reasoning of Justice Stevens. According to Justice Stevens, a statistical method is allowed by the Census Act (and the Constitution) if it "will make the census more accurate than an . . . attempt to count every individual by personal inspection, interview, or written interrogatory." 525 U.S. at 364 (Stevens, J. dissenting). That cannot be said here.

First, there is no evidence in the record that either status or occupancy imputation has that effect. While the Bureau argues that imputation is necessary to offset inaccuracies that might otherwise result from assigning an occupancy count of zero "to a household known to be occupied," DOJ Mem. 24 ¶ 14, the same argument does not apply with respect to occupancy imputation, in which the Bureau has no information upon which to conclude that the address is deemed to represent an occupied housing unit. Much less does the Bureau's argument apply with respect to status imputation, in which the Bureau has no information as to whether the address in question represents an existing housing unit, as opposed to vacant property or a non-residential structure.

Second, there is ample evidence that non-random sampling does *not* "make the census more accurate than an . . . attempt to count every individual." 525 U.S. at 364 (Stevens, J., dissenting). As explained at length, *supra* at 28-29, random sampling is significantly more reliable and accurate, as a scientific matter, than non-random methods such as hot-deck imputation. And that is especially true of occupancy and status imputation, which lack any nexus to any data regarding known individuals.

Third, it is undisputed that imputation was not designed to correct the under-representation of traditionally under-represented groups, such as minorities and children. See *supra* at 7. Thus, unlike the random sampling procedure struck down in *House of Representatives*, hot-deck imputation—and especially status and occupancy imputation—cannot be said to increase the accuracy of the census in this respect.

Fourth, even if the Bureau could show that the use of status and occupancy imputation improves the *numerical* accuracy of the census in some sense, that showing would be insignificant here because the Bureau has acknowledged that it cannot show that the use of any form of hot-deck imputation improves the *distributive* accuracy of the decennial census. DOJ Mem. 15 ¶ 35. As explained previously, the term "distributive accuracy," as used in connection with the decennial census, refers to the Bureau's ability to ascertain accurately the manner in which the nationwide population is distributed among the 50 states, which is the distinguishing component of any census that can be said to further the "'constitutional goal of equal representation.'" *Wisconsin* v. *City of New York*, 517 U.S. 1, 20 (1996); *Franklin* v. *Massachusetts*, 505 U.S. 788, 804 (1992).

In sum, the district court erred in concluding that hot-deck imputation is consistent with the Census Act. The Court should reach that conclusion either by condemning imputation categorically as a method of sampling, or at a minimum by holding that occupancy and status imputation

fail under any understanding of the governing statutory scheme.

II. IMPUTATION IS INCONSISTENT WITH THE "ACTUAL ENUMERATION" REQUIRED UNDER THE CENSUS CLAUSE.

Hot-deck imputation is also unlawful on constitutional grounds. The Census Clause calls for an apportionment based on an "actual enumeration," which contemplates an actual count and does not sanction the use of statistical estimates. This construction of the Census Clause finds support not only in the textual and historical evidence before the Court in *House of Representatives*, but also in a wealth of additional evidence from the Founding period. As set forth in detail below, this evidence demonstrates that "actual enumeration" was a term of art used consistently in the founding era to contrast an actual count from an estimate, and that the Framers understood the Census Clause to prescribe such a limitation on the conduct of the census. Moreover, none of the district court's attempts to sidestep this conclusion withstands analysis. Unless the constitutional prescription of an "actual enumeration" is to be disregarded entirely, the Court should hold that the Census Clause requires an actual count and does not sanction the use of hot-deck imputation.

A. Imputation is Incompatible With the Original Understanding of an "Actual Enumeration."

The district court's failure even to attempt to reconcile the Bureau's use of hot-deck imputation with the original understanding of the plain language of the Census Clause is hardly surprising. There simply is no plausible understanding of the terms "actual enumeration" that would permit the apportionment of Representatives to be determined on the basis of statistical estimates.

1. As the concurring opinion in *House of Representatives* pointed out, dictionaries contemporaneous with the ratifica-

tion of the Constitution reveal that "an 'enumeration' requires an actual counting, and not just an estimation of number":

> Noah Webster's 1828 American Dictionary of the English Language defines "enumerate" as "[t]o count or tell, number by number; to reckon or mention a number of things, each separately"; and defines "enumeration" as "[t]he act of counting or telling a number, by naming each particular," and "[a]n account of a number of things, in which mention is made of every particular article." Samuel Johnson's 1773 Dictionary of the English Language 658 (4th ed.) defines "enumerate" as "[t]o reckon up singly; to count over distinctly; to number"; and "enumeration" as "[t]he act of numbering or counting over; number told out." Thomas Sheridan's 1796 Complete Dictionary of the English Language (6th ed.) defines "enumerate" as "[t]o reckon up singly; to count over distinctly"; and "enumeration" as "[t]he act of numbering or counting over."

525 U.S. at 347 (concurring opinion) (alterations in original). The notion of "counting 'singly,' 'separately,' 'number by number,' 'distinctly,' which runs through these definitions is incompatible . . . with gross statistical estimates," *id.*, such as those generated by hot-deck imputation.

Moreover, as if to remove the possibility of any ambiguity, the Census Clause prescribes an *actual* enumeration—an enumeration, in other words, "really in act," not just "purely in speculation." Samuel Johnson, *A Dictionary of the English Language* (4th ed. 1773). Hot-deck imputation falls several steps short of the *actual* performance of an enumeration "really in act."

First, the Bureau's methodology in the 2000 census called for an estimate as a substitute for an actual count where enumerators identified a housing unit and determined that it was occupied, but could not determine the number of occupants in such a unit. This method of "household size

imputation" falls short of an actual enumeration—a count "really in act"—in that the Bureau had no actual knowledge as to the number of occupants that live in a housing unit estimated through this procedure. The number is thus the product of statistical "speculation," not data derived from a count performed "really in act."

The Bureau's methods of "occupancy imputation" and "status imputation" are even further removed from the actual performance of an enumeration "really in act." Under those methods, the Bureau used an estimate in place of an actual count where enumerators could not determine whether an address on the Master Address File represented an occupied housing unit. And it did so even when enumerators could not determine whether the address represented a valid housing unit and not a business, storage unit, or even a typographical error. See JS 4; see also *supra* at 8.

In these circumstances, there can be no doubt that the numbers derived by the Bureau were the product of pure statistical speculation and not a count performed "really in act." The Bureau lacked knowledge not only as to the number of occupants in a particular unit, but even as to the fundamental question of whether such a unit existed as a valid household. Because it is undisputed that this method alone cost Utah its fourth seat in the House of Representatives, the Court need reach no further than the conclusion that the statistical imputation of persons presumed to be living at addresses not known even to exist is not an "actual enumeration."

In sum, it is difficult to imagine a phrase that more clearly would demand an actual count over a mere estimate than the phrase "actual enumeration." Even the phrase "physical headcount" does not quite capture the distinction, inasmuch as traditional methods of enumeration have always included gathering data from heads of households on individuals not physically present, but known to reside in the household. See 525 U.S. at 335-36. Thus, the requirement of an "actual

enumeration" uniquely identifies the relevant difference between a statistical estimate and an actual count.[6]

2. Although the district court made no effort to suggest an alternative definition of "enumeration" that would be compatible with the use of imputation, the Solicitor General has cited a 1933 edition of the *Oxford English Dictionary* that defines enumeration as the "action of ascertaining the number of something." SG Mot. 21. This conception of an enumeration, however, is not the understanding that prevailed during the founding era. Indeed, the founding-era dictionary meaning set forth above is confirmed by an extensive record of historical usage.

This historical record—most of it uncovered since the decision in *House of Representatives*[7]—demonstrates that "actual enumeration" was a term of art in the founding era, and was used to refer to a population count based on actual data. As explained in detail below, the Framers' generation consistently identified a distinction between the method of enumeration and the alternative of statistical estimation, and even acknowledged the (supposedly modern) objections that the former was inherently costly and inevitably would result

[6] To be sure, the Census Clause goes on to vest in Congress the authority to effect the actual enumeration "in such Manner as [it] shall by Law direct." U.S. Const. art. I, § 2, cl. 3. But Congress's discretion is limited by "'the constitutional language.'" *Wisconsin*, 517 U.S. at 19-20. Thus, Congress's constitutional authority to direct the "manner" of the taking of the census leaves it free to decide which enumerative methods it will embrace (such as whether to send questionnaires by mail and whether and to what extent to require follow-up visits by individual enumerators). But this language cannot be read to trump the requirement of an "actual enumeration" and to permit a census by non-enumerative methods such as statistical estimation.

[7] The historical discussion here borrows from a forthcoming publication, by one of appellants' counsel, which treats these issues in greater detail. *See* Thomas R. Lee, *The Original Understanding of the Census Clause: Statistical Estimates and the Constitutional Requirement of an "Actual Enumeration,"* 77 Wash. L. Rev. 1 (2002).

in an undercount. Thus, the record of consistent historical usage confirms the founding-era dictionary definitions and demonstrates that an "actual enumeration" is not just any method of "ascertaining the number" of something, but a specific method of compiling actual data.[8]

a. In colonial times, the populations of the various colonies were estimated and enumerated primarily as a result of inquiries from the British Board of Trade. See Lee, *supra* at 41-47. Because of the cost and difficulty of conducting an actual enumeration, "[c]olonial governors looking for data . . . often had to resort to estimates in order to satisfy the Board of Trade." James H. Cassedy, *Demography in Early America: Beginnings of the Statistical Mind, 1600-1800*, at 72 (1969). Contemporaneous accounts of the colonial reports to the Board of Trade consistently distinguished between "estimates" and "enumerations." In his 1792 History of New

[8] Until recently, the Bureau itself consistently embraced a similar understanding of the Census Clause. *See* Bureau of the Census, *A Century of Population Growth* 9 (1909) (distinguishing between population assessments rendered "upon the basis of enumerations" and those based on mere "estimates."); Census Undercount Adjustment: Basis for Decision, 45 Fed. Reg. 69,366, 69,371 (Oct. 20, 1980) ("[t]he term 'actual Enumeration'" refers specifically to "a census or a headcount" and prohibits the use of estimates in the apportionment count) (AR at C01218); *id.* at 69,372 ("the framers of the Constitution drew a clear distinction between an 'actual Enumeration' and an estimate, regardless of its underlying methods") (AR at C01219). More recently, even when the Bureau decided to use the random sampling methodology struck down in *House of Representatives*, the Bureau submitted a report to Congress that drew a sharp distinction between "traditional physical enumeration methods" and non-enumerative "statistical methods" like imputation. *Census 2000 Report*, at x, 23; *id.* at 23 ("statistical methods" such as imputation are used to "correct for problems in physical enumeration") (AR at C00155). And, in the lower-court proceedings in *House of Representatives*, the Bureau told the district court that "*no constitutional* difference exists between sampling and the [hot-deck] imputation methodology." Defs.' Mem. in Opp. to the House's Mot. for Summ. J., at 27 n.20; *United States House of Representatives* v. *United States Dep't of Commerce*, No. 98-456 (D.D.C. filed May 4, 1998).

Hampshire, for example, Jeremy Belknap discussed the estimates and enumerations in that colony in the 1770s:

> The number of people . . . in 1767, was *estimated* at 52,700. Another *estimate* was made in 1774, of which I have met with no official account; but have been informed that it was 85,000. . . . A survey taken in 1775, *partly by enumeration* and *partly by estimation*, for the purpose of establishing an adequate representation of the people, made the whole number 82,200.

3 Jeremy Belknap, *The History of New Hampshire* 233-34 (1792) (emphasis added).[9]

Several of the Framers used the constitutional terminology this way prior to the Constitution's passage. John Adams, for example, noted in correspondence in 1780 that "some States ha[d] made . . . returns" of population "by authentic numerations of the people and regular and official returns," while other states hade made mere "estimates" based on some degree of "speculation." 7 *The Life and Works of John Adams* 272, 302-03 (Charles Francis Adams ed., 1852). James Madison used these same words in similar fashion in discussing the apportionment of war debt under the Articles of Confederation. He asserted that at that time "no actual numeration of the inhabitants of each State ha[d] yet been obtained by Congress," and thus concluded that an estimated or "computed number" would have to "form[] the basis of the

[9] *See also* Lee, *supra* at 43 (discussing the Connecticut General Assembly's 1755 authorization of an "enumeration" in the face of the Board's rejection of a previous estimate of population); Timothy Pitkin, *A Statistical View of the Commerce of the United States of America* 582-83 (New Haven 1835) (noting that "[i]n some of the colonies . . . actual enumerations were made—this took place in Connecticut in 1756 and in 1774, and we believe in Massachusetts; while in others, estimates were made, founded upon the number of taxable polls, or the number of the militia").

first requisition of the States." 22 *Journals of the Continental Congress*, 1774-1789, at 159 (W.C. Ford ed., 1908).[10]

b. Although there apparently was no recorded debate explicitly addressing the meaning of the words "actual enumeration" when they were added to the Constitution by the Committee of Style, see 2 *Records of the Federal Convention of 1787*, at 590 (M. Farrand ed., 1966), the tenor of the broader discussion surrounding the Census Clause suggests that the Framers undoubtedly embraced the original meaning of those words. From the outset of the debates on this Clause, the Framers' overriding concern was to provide a "permanent and precise standard" for apportionment. See 1 Farrand, *supra* at 578. They understood that any standard that preserved discretion in the hands of the political officers controlling the census would encourage an unseemly manipulation—as "those who have power in their hands will not give it up while they can retain it," but "will always when

[10] The constitutional terminology was used in this same sense on the other side of the Atlantic, as is illustrated by a widely published 18th-century debate about the size of the British population. *See* Lee, *supra* at 21-39. In the course of this debate, Richard Price and others used early methods of sampling to develop estimates of Britain's population—which suggested it was declining. *See* Richard Price, *An Essay on the Population of England, From the Revolution to the present Time* (2d ed. 1780), *reprinted in The Population Controversy* (D.V. Glass ed., 1973). Critics of these assessments consistently drew a stark distinction between an "actual enumeration" of population and a mere "estimate." Arthur Young, for example, complained that Price's assessment of "the number of houses" was "not from an actual enumeration, (for none was ever yet made) but *calculated* from the [rolls of the] hearth tax." Arthur Young, *Reply to Dr. Price To the Printer of the St. James Chronicle* 322, 324 (Mar. 28, 1772), *reprinted in* Glass, *supra*. William Eden acknowledged that "enumerations are perhaps impracticable in great states" and that "recourse must be had to inductions from the comparison of collateral circumstances at different times," but he also complained that Price's conclusions "were founded on conjectural estimates, and not on actual enumerations." William Eden, *Letters to the Earl of Carlisle, from William Eden, Esq.* xii, 185 (1780), *reprinted in* Glass, *supra*.

they can rather increase it." *Id.* See also *Franklin*, 505 U.S. at 791 (requirement that a new census be conducted every ten years was designed "to ensure that entrenched interests in Congress did not stall or thwart needed reapportionment").

This overriding policy consideration initially arose in the context of the debate over whether to reapportion members of Congress on the basis of an assessment of the States' wealth, as opposed to (or in addition to) their population. See 1 Farrand, *supra* at 582. One early version of the Census Clause would have called for reapportionment "according to the principles of wealth & population." *Id.* The wealth criterion, however, was abandoned on the basis that it would have required an "estimate" and accordingly would have introduced too much discretion:

> Mr. Sherman thought the number of people alone the best rule for measuring wealth as well as representation; and that if the Legislature were to be governed by wealth, they would be obliged to estimate it by numbers. He . . . had been convinced by the observations of (Mr. Randolph & Mr. Mason) that the *periods* & the *rule* of revising the Representation ought to be fixt by the Constitution.

Id.; see also Lee, *supra* at 49-50 (discussing similar views of Paterson, Mason, and Hamilton).

The Framers' concern as to the imprecision and manipulability of the wealth criterion surely would have been understood to foreclose estimates of population.[11] Indeed,

[11] Indeed, the records of the Constitutional Convention make an express reference to the possibility of an "estimate" of population, and indicate a clear understanding of the difference between such an estimate and a count of actual numbers. Nathaniel explained that "in Massts. *estimates* had been taken in the different towns" in an attempt to ascertain their populations. 1 Farrand, *supra* at 587. He then went on to note that "persons had been curious enough to compare these estimates with the respective *numbers* of people," and in so doing had concluded that a

delegates to the Convention squarely rejected an early version of the Census Clause that called for a "census and estimate," 1 Farrand, *supra* at 564, adopting instead the standard of an "actual enumeration"—a "rule of revising the Representation" that was "fixt" and "permanent and precise." This insistence on a fixed, precise rule over a subjective standard of estimation is thoroughly undermined by a system that preserves in Congress the discretion to adopt a different standard for estimating the population every ten years. See 525 U.S. at 348 (concurring opinion) (to give Congress the discretion to select "among various estimation techniques" is to give "the party controlling Congress the power to distort representation in its own favor").[12]

c. Subsequent statements by delegates to the Constitutional Convention confirm that they understood the Census Clause to impose a fixed standard for apportionment and to foreclose the possibility of estimation. When the first Census Bill came up for debate in Congress, James Madison proposed that the census be expanded beyond "the bare enumeration of the inhabitants" and that it also gather data concerning "the several classes into which the community was divided." James Madison, Census Bill, House of Repre-

measure of population was also an accurate indicator of wealth. *Id.* Nevertheless, Gorham "support[ed] the propriety of establishing numbers as the rule" for reapportionment. *Id.* Gorham and his colleagues, then, surely understood the concept of an "estimate" of population, and their decision to require an "actual enumeration" cannot reasonably be cast aside as a meaningless stylistic change.

[12] As Utah demonstrated below, hot-deck imputation provides the Bureau with extensive opportunities to manipulate the census and its resulting apportionment. *See* JA 53-55. For example, the unrefuted evidence shows that, if non-random sampling is generally allowed, the Bureau could easily alter the impact and extent of hot-deck imputation by substituting a different statistical algorithm for the "nearest neighbor" method currently employed, by reducing the resources it dedicates to the non-response follow-up process, or by changing the procedures for adding or removing addresses from the Master Address File. *See id.*

sentatives 25–26 Jan., 2 Feb. 1790, *Papers of James Madison* 13:8–9, 15–16, *quoted in* 2 Philip B. Kurland & Ralph Lerner, *The Founders' Constitution* 139 (1987). Madison's proposal was roundly rejected, mainly because of concerns about practicability and complexity. In response to this objection, Madison argued that the "enumeration" required by the Constitution would itself be even more complex:

> If the object to be attained by this particular *enumeration* be as important in the judgment of this house, as it appears to my mind, they will not suffer a small defect in the plan, to defeat the whole. And I am very sensible, Mr. Speaker, that there will be more difficulty attendant on the taking the census, *in the way required by the constitution*, and *which we are obliged to perform*, than there will be in the additional trouble of making all the distinctions contemplated in the bill.

Id. (emphasis added). Thus, Madison understood the constitutional prescription of an "actual enumeration" as a specific prescription of "the way" that the census should be taken, not as a mere stylistic addition, nor as blanket authority for any conceivable method of assessing the population. Although an actual enumeration would be "difficult," Madison nonetheless acknowledged that Congress was "obliged to perform" the census in this manner.

George Washington and Thomas Jefferson shared this same understanding. In their correspondence discussing the returns from the first census, Washington and Jefferson lamented the fact that the returns from the "enumeration" had fallen short of their "estimates" of the population and failed accurately to reflect the true population. In a letter to William Short, for example, Jefferson wrote as follows:

> I enclose you also a copy of our census, written in black ink, so far as we have *actual* returns, and supplied by *conjecture* in red ink, where we have no returns; but the conjectures are known to be very near the truth. Making

> very small allowance for omissions, which we know to have been very great, we are certainly above four millions, probably about four millions one hundred thousand.

8 *The Writings of Thomas Jefferson* 236 (Andrew A. Lipscomb ed., 1903) (emphasis added).

Washington expressed similar sentiments in a letter to Gouverneur Morris in which he lamented that the "enumeration" of the population appeared to fall short of the "estimate" he had previously offered of the population of the United States:

> In one of my letters to you the account which I gave of the number of inhabitants which would probably be found in the United States on enumeration was too large. The estimate was then founded on the ideas held out by the Gentlemen in Congress of the population of their several States, each of whom (as was very natural) looking thro' a magnifying glass would speak of the greatest extent, to which there was any probability of their numbers reaching. Returns of the Census have already been made from several of the States and a tolerably just estimate has been formed now in others, by which it appears that we shall hardly reach four millions; but one thing is certain our *real* numbers will exceed, greatly, the official returns of them.

31 *The Writings of George Washington* 329 (John C. Fitzpatrick ed., 1931) (emphasis added). This correspondence confirms, not only that Washington and Jefferson understood the distinction between an enumeration and an estimate, but also that they understood the Constitution and the first Census Act to have chosen the former over the latter.

In short, the phrase at the center of this constitutional debate—an "actual enumeration"—was a term of art used throughout the founding era to draw the very distinction at issue in this case. There can be no doubt that Americans in

the founding era understood the difference between an "actual enumeration" of the population and a mere "estimate," and, despite the obvious advantages of allowing estimates, nevertheless chose an "actual enumeration." If the original understanding of the Census Clause is to be preserved, imputation, which is unquestionably a method of estimation rather than enumeration, must be invalidated.[13]

B. The District Court's Attempts to Explain Away the Constitutional Language Are Unpersuasive.

The district court offered three principal grounds for its refusal to embrace this original understanding of the actual enumeration provision: (1) the Framers could not have intended to forbid methods like imputation that purportedly improve the accuracy of the census; (2) the actual enumeration provision may be disregarded because it was added to the Constitution by the Committee of Style; and (3) the Census Clause cannot be read to forbid imputation because some form of estimation is inevitable. All three arguments fail.

1. The district court's suggestion that the Census Clause proscribes only "the grossest of estimates," and does not prohibit "narrowly tailored statistical methodologies" (JS App. 26a) like imputation is as unworkable as it is unfaithful to the original meaning of the Census Clause. If the district court's approach were to prevail, it would embroil the federal

[13] At a minimum, even if this Court concludes that the Census Act is sufficiently unclear on this point to warrant consideration of Defendants' deference argument, the Court should "construe the statute to avoid" the "serious constitutional problems" raised by Defendants' interpretation of § 195. *See, e.g., Edward J. DeBartolo Corp. v. Florida Gulf Coast Bldg. & Constr. Trades Council*, 485 U.S. 568, 575 (1988). Indeed, it is well established that judicial deference is not accorded to an agency interpretation that runs headlong into a constitutional thicket. *Id.* at 574-75 (rejecting an agency interpretation under the doctrine of constitutional doubt, while noting that the interpretation in question "would normally be entitled to deference").

courts in an endless series of inquiries into which estimation procedures are *sufficiently* accurate to pass constitutional muster. See 525 U.S. at 349 (concurring opinion) (noting that "[t]he prospect of this Court's reviewing estimation techniques in the future, to determine which of them so obviously creates a distortion that it cannot be allowed, is not a happy one") (emphasis omitted).

Moreover, the district court's approach is flatly contradicted by the historical record. As explained above, the Framers understood an actual enumeration as a specific method of determining the population, not merely an aspiration for accuracy. Delegates to the Constitutional Convention expressly intended to adopt a "rule" that was "fixt" and "permanent and precise," and they understood the prescription of an actual enumeration to do just that. James Madison, for example, recognized that there was "difficulty" and "trouble" in conducting an actual enumeration, but nonetheless concluded that this was "the way required by the Constitution."

The historical record also contradicts the district court's suggestion that the Framers conceived only of "gross" estimates and had no conception of estimation as a supplement to actual enumeration. As noted above, records of early New Hampshire population counts refer to an assessment "partly by enumeration and partly by estimation," 3 Belknap, *supra* at 233-34, while participants in a contemporaneous British debate expressly discussed the difference between data drawn "from partial instances" and "an actual enumeration of the whole people." Eden, *supra* at 185.

Finally, the historical record belies the notion that the prescription of an actual enumeration was merely an aspiration for accuracy. The father of the British census expressly acknowledged the undercount problem—*i.e.*, that an "actual enumeration must always be under the real number." John Rickman, *The Commercial and Agricultural Magazine* 391, 397 (June 1800), *reprinted in* D.V. Glass, *Numbering the People* app. (1973). As explained above,

moreover, Washington and Jefferson recognized this same limitation. Although Washington had ample ability and the incentive to supplement the official returns with estimates, he acknowledged that he was bound by the "authenticated number" produced by the official census returns. Similarly, Jefferson acknowledged the possibility of making an "allowance" for the "omissions" in the enumeration, yet he understood that the Constitution called for census "returns" based on an actual enumeration, not mere "conjecture."

Thus, the Framers can hardly be thought to have embraced all methods of assessing the population that are purportedly aimed at "improving the accuracy of the decennial census." Indeed, their refusal to attempt to correct for the known shortcomings of enumeration is a powerful testament to their understanding of the Census Clause. See 525 U.S. at 335 (explaining that "[f]rom the very first census . . . Congress has prohibited the use of statistical sampling in calculating the population for purposes of apportionment"); *id.* at 348 (concurring opinion) (citing *Printz* v. *United States*, 521 U.S. 98, 105 (1997) for the proposition that Congress's refusal to use methods of estimation suggests that it "thought that estimations were not permissible").

2. The district court majority also thought the actual enumeration provision could be disregarded because it was "added [to the Constitution] by the Committee of Style and Arrangement, a committee which," according to the district court, "did not operate to alter the substance of any of the resolutions passed by the Constitutional Convention." JS App. 26a. This analysis is flatly inconsistent with this Court's opinion in *Nixon* v. *United States*, 506 U.S. 224 (1993). In that case, the petitioner argued that a particular term in the Impeachments Trial Clause lacked substantive meaning because it was a "'cosmetic edit' added by the Committee of Style after the delegates had approved the substance of the . . . Clause." *Id.* at 231. This Court rejected this argument for two reasons.

First, the Court explained that, because "the Committee of Style had no authority from the Convention to alter the meaning of" the Constitution, the Court "must presume that the Committee's reorganization or rephrasing accurately captured what the Framers meant in their unadorned language," and in short, "must presume that the Committee did its job." *Id.* (citing 2 Farrand, *supra* at 553, and *Powell* v. *McCormack*, 395 U.S. 486, 538-39 (1969)). As the Court went on to explain, "[t]his presumption is buttressed by the fact that the Constitutional Convention voted on, and accepted, the Committee of Style's linguistic version," and that language added by the Committee of Style is therefore "entitled to no less weight than any other word of the text, because the Committee revision perfected what had been agreed to." *Id.* (citing 2 Farrand, *supra* at 663-67) (internal quotations omitted).

Second, the Court noted that carrying this "argument to its logical conclusion would constrain us to say that the second to last draft would govern in every instance where the Committee of Style added an arguably substantive word." *Id.* at 231-32 (emphasis omitted). "Such a result," the Court continued, would be "at odds with the fact that the Convention passed the Committee's version, and with the well-established rule that the plain language of the enacted text is the best indicator of intent." *Id.* at 232.

The district court's analysis fails under this approach. The Committee of Style must be deemed to have done its job in calling for an "actual enumeration," and that language is "entitled to no less weight than any other word of the text." In fact, the proceedings of the Constitutional Convention suggest that the Committee had every reason to believe that the addition of the words "actual enumeration" was consistent with the Committee's job of capturing the Framers' intent—since the Framers' primary concern was to avoid a subjective standard for apportionment that would call for the exercise of discretion.

3. Finally, the majority was also wrong in asserting that, because the "imputation of a zero" would (in its view) be "inconsistent with the constitutional imperative of an actual enumeration," the constitution cannot be construed to foreclose "the imputation of statistically plausible values for the missing data." JS App. 25a. This conception of the actual enumeration provision cannot be embraced without rendering the provision a nullity. It boils down to the absurd proposition that the prescription of an actual enumeration is as offended by the *inclusion* of statistical estimates in the apportionment count as it is by the *exclusion* of those same estimates.

The plain language of the Census Clause calls for an actual enumeration, and in so doing it necessarily assumes that all persons who cannot be "enumerated" will be excluded from the apportionment. Thus, inclusion of statistical estimates runs afoul of the express constitutional command, while exclusion of persons who cannot be counted is a necessary corollary of a census by actual enumeration.

In other words, the failure to enumerate some persons does not mean that they are imputed out of existence. It simply means that they could not be enumerated and accordingly could not be included in the apportionment count.

In sum, there can be no serious doubt that the constitutional phrase "actual enumeration" excludes any statistical estimation techniques, whether random and pre-meditated (as in *House of Representatives*) or otherwise. None of the arguments advanced by the majority below provides any escape from this conclusion.

CONCLUSION

For the foregoing reasons, the Court should reverse the judgment of the district court.

Respectfully submitted,

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v.

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ON APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF UTAH

BRIEF FOR THE FEDERAL APPELLEES

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QUESTIONS PRESENTED

In the 2000 census, the Census Bureau used a process known as "imputation," under which the number of residents in a housing unit, whose occupancy could not otherwise be determined, was based on the known number of residents of a similar nearby unit. The questions presented are as follows:

1. Whether appellants' challenge to the Census Bureau's use of imputation is justiciable.

2. Whether the use of imputation violated 13 U.S.C. 195, which prohibits "the use of the statistical method known as 'sampling'" in determining the population "for purposes of apportionment of Representatives in Congress among the several States."

3. Whether the use of imputation violated the Census Clause of the Constitution, Article I, Section 2, Clause 3.

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BRIEF FOR THE FEDERAL APPELLEES

OPINION BELOW

The opinion of the three-judge district court (J.S. App. 1a-34a) is not yet reported.

JURISDICTION

The judgment of the district court was entered on November 5, 2001. The notice of appeal (J.S. App. 35a-36a) was filed on November 5, 2001. The jurisdictional statement was filed on November 20, 2001. The jurisdiction of this Court is invoked under 28 U.S.C. 1253 and under Section 209(e)(1) of the Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Act, 1998, Pub. L. No. 105-119, 111 Stat. 2482. On January 22, 2002, this Court issued an order postponing further consideration of the question of jurisdiction to the hearing of the case on the merits. J.A. 451; see pp. 13-16, *infra*.

STATEMENT

1. The Constitution requires a decennial census for the purpose of determining the number of Representatives to which each State is entitled. Article I, Section 2, Clause 3 provides, in its first sentence, that "Representatives * * * shall be apportioned among the several States * * * according to their respective Numbers" (the Apportionment

Clause). The second sentence then provides: "The actual Enumeration shall be made within three Years after the first Meeting of the Congress of the United States, and within every subsequent Term of ten Years, in such Manner as they shall by Law direct" (the Census Clause). *Ibid.* See also U.S. Const. Amend. XIV, § 2 ("Representatives shall be apportioned among the several States according to their respective numbers, counting the whole number of persons in each State, excluding Indians not taxed.").

2. The Census Act provides that the Secretary of Commerce "shall, in the year 1980 and every 10 years thereafter, take a decennial census of population as of the first day of April of such year." 13 U.S.C. 141(a). The "tabulation of total population by States" is to be completed and reported by the Secretary to the President within nine months after the April 1 census date. 13 U.S.C. 141(b). Within one week after the beginning of the first Session of Congress following the census, the President must transmit to Congress a statement showing the "whole number of persons in each State * * * and the number of Representatives to which each State would be entitled" under the statutorily prescribed "equal proportions" formula for apportioning Representatives. 2 U.S.C. 2a(a); see *United States Dep't of Commerce* v. *Montana*, 503 U.S. 442, 451-455 (1992). Under the apportionment law, "[e]ach State shall be entitled * * * to the number of Representatives shown in the statement" submitted by the President. 2 U.S.C. 2a(b). Within 15 days after receiving that statement, the Clerk of the House must "send to the executive of each State a certificate of the number of Representatives to which such State is entitled." *Ibid.*

The Census Act generally authorizes the Secretary to conduct the decennial census "in such form and content as he may determine." 13 U.S.C. 141(a). The Census Bureau and its Director assist the Secretary in performing his duties under the Census Act. See 13 U.S.C. 2, 21. The Act further

states that "[e]xcept for the determination of population for purposes of apportionment of Representatives in Congress among the several States, the Secretary shall, if he considers it feasible, authorize the use of the statistical method known as 'sampling' in carrying out the provisions of this title." 13 U.S.C. 195. Section 195 was enacted in 1957, at the request of the Secretary of Commerce, and was amended to its present form in 1976. See *Department of Commerce* v. *United States House of Representatives*, 525 U.S. 316, 336, 338-339 (1999).

3. Since 1790, the basic method of census operations has been to attempt to contact every household in order to determine the aggregate number of persons residing within each dwelling unit. From 1810 through 1960, enumerators were required by statute to visit each home in person to make the requisite inquiries. See *House of Representatives*, 525 U.S. at 335. In 1964, Congress amended the Census Act to eliminate that requirement. See Act of Aug. 31, 1964, Pub. L. No. 88-530, 78 Stat. 737. In every subsequent census the Bureau has employed written questionnaires, mailed to every known residential address, as the primary method of enumeration. See J.A. 268 (Declaration of Howard Hogan, Director, Decennial Statistical Studies Div'n, Census Bureau (Hogan Decl.)). "[W]hen a member of the household could not be found, census-takers have historically relied on information from neighbors, landlords, postal workers, or other proxies. * * * This procedure was first formally authorized for the 1880 census." J.A. 253-254 (Hogan Decl.); see Act of Mar. 3, 1879, ch. 195, § 8, 20 Stat. 475.

The Census Bureau's intensive initial efforts to secure a complete and accurate count through the means described above are not entirely successful. When the available information regarding the number of persons who resided in a particular housing unit on the census date is incomplete or contradictory, the Bureau has employed "imputation" to ac-

count for missing, discrepant, or improperly processed data. See J.A. 250-252, 254, 256-257 (Hogan Decl.). "Imputation is recognized in the statistical community as a procedure that can improve the accuracy and reliability of censuses and surveys, and has been amply discussed and documented in the professional literature." J.A. 263 (Hogan Decl.) (citing sources). The Bureau has traditionally based the imputation on the characteristics of a nearby housing unit. See J.A. 256-257 (Hogan Decl.). The Bureau has concluded that imputing characteristics to a housing unit in such circumstances, rather than automatically attributing zero residents to the unit, improves the accuracy of the census because "studies have shown that a significant proportion of returns with questionable or incomplete data or unresolved status are actually valid, occupied housing units." J.A. 252 (Hogan Decl.).

Imputation may be used either because the Bureau is unable to contact a particular housing unit's occupants or others having some knowledge of the unit, or because the data obtained through direct contacts is contradictory or otherwise unusable. See, *e.g.*, J.A. 99 ("incomplete data may result from such factors as partial enumeration, respondent refusal or other nonresponse, clerical handling (e.g., coding) of questionnaires and electronic processing of the questionnaires"). In the 1960 census, for example, imputation was used to address "mechanical difficulties * * * with * * * the computer imaging device used to record the questionnaires." J.A. 267 (Hogan Decl.). Thus, in some instances, "refusing to impute ignores some people that attempted to participate in the census." J.A. 263 (Hogan Decl.).

In the 1940 and 1950 censuses, the Bureau used imputation to account for missing data concerning the age or other demographic characteristics of household members, but not to determine the basic population counts used in apportioning Representatives among the States. J.S. App. 8a; J.A. 266-267 (Hogan Decl.). In every census starting in 1960,

however, the Census Bureau has employed "count imputation"—*i.e.*, imputation used in the determination of official population figures. See J.S. App. 8a; J.A. 266-270, 273, 275-276 (Hogan Decl.); A.R. C00376-C00380, C00394-C00395, C00418-C00425, C00431, C01388-C01389. The count-imputation method used by the Census Bureau since the 1960 census has been the "hot-deck" method, "in which the imputed information comes from the same census." J.A. 256 (Hogan Decl.).[1] After each census, the Bureau has published procedural histories, analyses, and reports that describe the use of imputation. See, *e.g.*, A.R. C00361, C00379, C00395-C00396, C00418, C00425.

Following the 1980 census, the State of Indiana sued the Secretary of Commerce because, as a result of count imputation, a Representative in the House shifted from Indiana to Florida. See *Orr* v. *Baldrige*, No. IP-81-604-C (S.D. Ind. July 1, 1985) (J.A. 110-119). In that suit, the parties ultimately stipulated, and the court agreed, that imputation was not sampling prohibited by 13 U.S.C. 195. See J.A. 113-114; J.S. App. 19a. The court in *Orr* explained (J.A. 114):

> Sampling is the selection of a subset of units from a larger population in such a way that each unit of the population has a known chance of selection. Sampling is used where a scientifically selected set of units can be used to represent the entire population from which they are drawn. Inferences about the entire population can be based on sample results. Imputation, on the other hand, is a procedure for determining a plausible value for missing data. Imputation is used in both sample surveys and censuses with the goal of achieving as complete as possible an enumeration of the sampled or population units.

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[1] "'Cold-deck' imputation uses information from a prior census or some other outside source." J.A. 256 (Hogan Decl.).

4. "In the 2000 census, the Census Bureau processed data for over 120 million households, including over 147 million paper questionnaires and 1.5 billion pages of printed material." J.S. App. 25a. The Bureau's efforts "to obtain a completed census questionnaire from every housing unit for the 2000 census" began with the development of a Decennial Master Address File (DMAF), "which contained the mailing address, street address, and census block location of every housing unit in the United States." *Id.* at 6a. "Addresses in the DMAF originated from official sources such as the 1990 census, the U.S. Postal Service, local governments, tribal governments, and Census Bureau enumerators. These addresses were validated and updated according to specific Bureau procedures." J.A. 256 (Hogan Decl.). The Bureau sought responses from residents of each address through a number of techniques designed to maximize the response rate, including mailed, hand-delivered, and enumerator-prepared questionnaires, complemented by community outreach. J.S. App. 7a; A.R. C00198-C00201, C00206-C00207. The Census Bureau then undertook extensive efforts to contact nonresponding households. Enumerators performed rechecks and telephone interviews, making up to six attempts to obtain interviews. If the Census Bureau was unable to establish direct contact with a resident of a particular housing unit, the Bureau sought the information from proxy respondents such as "a neighbor, rental agent, building manager, or other knowledgeable individual." J.A. 285 (Hogan Decl.); see A.R. C00819-C00841.

The Census Bureau employed count imputation when it was unable to obtain complete and consistent data on a particular dwelling unit from a household member or proxy respondent. J.S. App. 7a-8a. "Household size" imputation was used "when Bureau records indicated that the housing unit was occupied, but [the Bureau] had insufficient information as to the number of individuals residing in the unit." J.A.

444. "Occupancy" imputation was used "[w]hen Census Bureau records indicated that a housing unit existed but did not provide sufficient information to definitively classify it as either occupied or vacant." *Ibid.* "Status" imputation was used "[w]hen the Census Bureau's records had insufficient information about whether an address represented a valid, non-duplicated housing unit." *Ibid.* When data for a particular unit were missing or incomplete, data from a nearby unit in the same tract with similar characteristics were imputed to it. J.S. App. 8a; J.A. 255, 256-257, 266-267 (Hogan Decl.).

5. The Census Bureau initially adopted a plan for the 2000 census that included statistical sampling programs. See *House of Representatives*, 525 U.S. at 324-325. As in the 1960 through 1990 censuses, the Bureau's plan for the 2000 census also included count imputation to address data processing problems, as well as a variety of other statistical methodologies. J.A. 275-276, 280 (Hogan Decl.). The House of Representatives and various private parties filed suit to challenge two of the proposed sampling programs, arguing that the use of sampling in determining the population figures for the apportionment of Representatives among the States would violate 13 U.S.C. 195, as well as the Census Clause of the Constitution. In *House of Representatives*, the Court held that Section 195 "prohibits the proposed uses of statistical sampling in calculating the population for purposes of apportionment." 525 U.S. at 343. In light of its disposition of the plaintiffs' statutory claim, the Court found it unnecessary to resolve the constitutional question. *Id.* at 343-344.

6. Because the Census Bureau has never considered count imputation to be a form of "sampling" within the meaning of Section 195, its intention to use imputation in the 2000 census was unaffected by the Court's decision in *House of Representatives*. J.A. 279 (Hogan Decl.). Before the com-

mencement of the 2000 census, the Bureau presented all details of its plan for the census, including its intention to use imputation, to the congressional committees charged with overseeing the census, the General Accounting Office, the Census Monitoring Board, the Inspector General of the Department of Commerce, and numerous advisory committees. J.A. 280-281 (Hogan Decl.); see, *e.g.*, A.R. C01519, C01731, C01752, C01805, C01818-C01819. The Bureau conducted the census in accordance with the plans presented to Congress. A total of approximately 0.4% of the apportionment count (1.2 million persons) was attributable to imputation. J.S. App. 7a. That percentage was roughly in line with the 1970 and 1980 censuses, when approximately 900,000 and 761,400 persons, respectively, were attributable to imputation. J.A. 268-269, 270, 277-278 (Hogan Decl.).

7. If the Bureau had attributed zero residents to each of the housing units for which imputation was used, Utah would have been apportioned one additional and North Carolina one fewer Representative. J.S. App. 9a. The State of Utah and several elected Utah officials (appellants in this Court) brought suit, seeking to invalidate the use of imputation and to have one Representative reapportioned from North Carolina to Utah. Appellants alleged that the Bureau's use of imputation violated the Administrative Procedure Act (APA), 5 U.S.C. 701 *et seq.*; the Census Act; and the Census Clause of the Constitution. J.S. App. 9a. The State of North Carolina and several of its elected officials intervened as defendants. *Id.* at 2a. A three-judge district court convened under 28 U.S.C. 2284 granted the defendants' motion for summary judgment. J.S. App. 1a-34a.

a. Relying on this Court's decision in *Franklin* v. *Massachusetts*, 505 U.S. 788 (1992), the district court first held that appellants' Census Act and constitutional claims were justiciable. J.S. App. 9a-12a. Based on *Franklin* and on *Utah* v. *Evans*, 143 F. Supp. 2d 1290 (D. Utah) (*Evans I*),

aff'd, 122 S. Ct. 612 (2001), however, the court held that appellants' APA claim was not justiciable. J.S. App. 12a-15a.[2]

b. On the merits, the district court held that 13 U.S.C. 195 does not prohibit the use of imputation in determining population figures for purposes of apportioning Representatives among the States. J.S. App. 16a-24a. The court observed that "section 195 does not preclude the Census Bureau from the use of every type of statistical methodology in arriving at apportionment figures during a decennial census. Instead, it prohibits only 'the use of the statistical method known as "sampling."'" *Id.* at 18a. The district court "conclude[d] that statistical sampling and imputation are separate statistical methodologies and that they were viewed as such at the time of the enactment of § 195." *Ibid.*

c. The district court further held that the Bureau's use of imputation in determining the population totals employed in apportioning Representatives did not violate the Census Clause of the Constitution. J.S. App. 24a-27a. The court observed that the text of the Census Clause, which provides that the decennial census shall take place "in such Manner as [Congress] shall by law direct," U.S. Const. Art. I, § 2, Cl. 3, "vests Congress with virtually unlimited discretion in conducting the decennial actual Enumeration." J.S. App. 24a (citing *Wisconsin* v. *City of New York*, 517 U.S. 1, 19 (1996)). Given "the enormity and complexity of" the decennial census, the court found it "inconceivable that the Constitution prohibits the use of statistical methodologies to account for missing and incomplete data." *Id.* at 25a. Because gaps in the recorded data are inevitable, the court explained, "some type of imputation must take place by practical necessity, whether it is the imputation of statistically plausible values for the missing data or the imputation of a zero." *Ibid.*

---

[2] Appellants do not press their APA claim in this Court.

The district court rejected appellants' contention that the phrase "actual Enumeration" in the Census Clause precludes count imputation or requires the use of a particular census methodology. The court concluded that "[t]he constitutional requirement of an enumerative census was simply to distinguish that process from the conjectural apportionment of the first Congress" set forth in Article I, Section 2, Clause 3 of the Constitution itself. J.S. App. 26a. The court also noted that "the phrase 'actual enumeration[]' * * * was added by the Committee of Style and Arrangement, a committee which did not operate to alter the substance of any of the resolutions passed by the Constitutional Convention." *Ibid.*

d. Senior District Judge Greene dissented. J.S. App. 28a-34a. Judge Greene would have held that the Bureau's use of imputation violated Section 195's prohibition on the use of "sampling" in the determination of population figures used to apportion Representatives among the States. *Id.* at 28a.

SUMMARY OF ARGUMENT

I. Appellants' challenge to the Census Bureau's use of count imputation is justiciable under this Court's decisions in *United States Dep't of Commerce* v. *Montana*, 503 U.S. 442 (1992), and *Franklin* v. *Massachusetts*, 505 U.S. 788 (1992). Those suits were filed after the President had transmitted to Congress his statement setting forth the number of Representatives to which each State was entitled. Despite the federal government's contentions that judicial review was unavailable, based in part on the perceived impropriety of a judicial order mandating reapportionment after the President had transmitted his report, this Court held both suits to be justiciable.

II. The Census Bureau's use of imputation does not violate 13 U.S.C. 195.

A. Among statisticians, the term "sampling" has a well-accepted meaning and refers to a strategy for collecting data. An essential feature of a "sampling" process is the

deliberate selection, during the design phase of the survey, of a subset of the population that is believed to be representative of the whole. Imputation, by contrast, is a method of processing data that have already been collected.

B. The history and purposes of Section 195 confirm that the term "sampling" refers to a method of data collection and does not encompass imputation. For purposes other than apportionment, Congress first authorized and later directed the use of "sampling" (when the Secretary considers it feasible), in order to reduce the cost and burden on respondents that the census might otherwise entail. Congress was thus motivated by the perceived advantages of sampling as a data-collection method. With respect to the apportionment of Representatives, however, Congress believed that the Bureau should employ the most comprehensive feasible data-collection efforts.

Appellants do not contend that the Census Bureau should have made greater efforts to collect information from the housing units at issue here. Rather, their claim is that the Bureau should have attributed zero residents to each of the relevant dwelling units rather than imputing data from comparable nearby units. Absent any challenge to the Bureau's data-collection measures, appellants' suit does not implicate the concerns underlying Section 195.

C. The Census Bureau has used count imputation in every census since 1960 and has never expressed any doubt as to its legality. The Bureau's use of count imputation has repeatedly been brought to the attention of Congress and the public, particularly in connection with the 1980 census, when the State of Florida received a Representative that would have been apportioned to the State of Indiana if imputation had not been used. The Bureau's longstanding view that hot-deck imputation is not a form of "sampling" within the meaning of Section 195 is entitled to judicial deference.

D. The Census Bureau's use of "occupancy" and "status" imputation do not violate Section 195. Appellants' basic textual theory provides no basis for distinguishing "occupancy" and "status" imputation from "household size" imputation. Although the policy arguments favoring "household size" imputation are particularly strong, the Bureau has reasonably concluded that "occupancy" and "status" imputation will also increase the accuracy of the census.

III. The Census Bureau's use of count imputation is consistent with the Census Clause of the Constitution.

A. The text of the Census Clause does not prescribe a particular method of determining the population. Rather, the Census Clause provides that the census shall be conducted "in such Manner as [Congress] shall by Law direct." U.S. Const. Art. I, § 2, Cl. 3.

B. The drafting history of the Census Clause confirms that the Framers did not intend to restrict Congress's choice of census methodologies. The phrase "actual Enumeration" first appeared in the draft Constitution submitted to the Convention by the Committee of Style and Arrangement, which evidently regarded that phrase as substantively equivalent to the prior draft's directive that the "number" of each State's inhabitants "shall * * * be taken in such manner as [Congress] shall direct." The words "actual Enumeration" simply refer to the concrete undertaking of ascertaining the population of the States. The word "actual" also serves to distinguish the permanent basis for apportioning Representatives from the temporary allocation, based on speculation about the States' populations, that the Census Clause itself provided would be in effect until the first census took place.

C. The federal officials charged with conducting the decennial census have never attempted to contact each of the Nation's residents directly. Rather, since 1790, the Census Bureau and its predecessors have employed a household-by-

household approach, seeking through various means to determine the aggregate number of occupants of every dwelling unit. The use of imputation does not differ in kind from the federal government's prior reliance on other evidence of household size that, while imperfect, is deemed sufficiently reliable to improve the accuracy of the count.

D. The requirement that a new "Enumeration" be conducted within every ten-year period was intended to ensure that the apportionment of Representatives would continue to correspond to the "respective Numbers" of the "several States." The decennial census can fulfill that purpose, however, only to the extent that it *accurately* determines the relative population shares of the individual States. To construe the phrase "actual Enumeration" to preclude techniques that are consistent with the traditional household-by-household approach and that would enhance the accuracy of the census would place the Census Clause at cross-purposes with the related constitutional provisions that the Clause was intended to implement.

ARGUMENT

I. UNDER THIS COURT'S PRECEDENTS, APPELLANTS' SUIT IS JUSTICIABLE

Pursuant to the procedure established by the apportionment law (see p. 2, *supra*), the President transmitted to Congress in January 2001 the statement showing the number of Representatives to which each State, including North Carolina, is entitled under the statutory apportionment formula. See 2 U.S.C. 2a. Under the apportionment law, each State is now entitled to the number of Representatives shown in the President's statement, "until the taking effect of a reapportionment under [2 U.S.C. 2a] or subsequent statute." 2 U.S.C. 2a(b). In their motion to affirm or dismiss, the North Carolina appellees contend (at 11-14) that this Court lacks authority to issue an order affecting the apportionment of Representatives that was set forth in the

President's statement. Although that argument has considerable force as an original matter—indeed, the federal government advanced similar contentions in two prior cases —it appears to be foreclosed by this Court's precedents.

A. In *United States Department of Commerce* v. *Montana*, 503 U.S. 442 (1992), the Court considered and rejected the State of Montana's constitutional challenge to the statutorily prescribed "equal proportions" formula (2 U.S.C. 2a(a)) for apportioning Representatives among the States. The federal government argued in that case that Congress's choice among competing apportionment formulas "present[ed] a 'political question' not amenable to judicial resolution." 503 U.S. at 456. In support of that proposition, the government noted, *inter alia*, that under 2 U.S.C. 2a, "the President must send a formal statement to the House by the end of the census year containing the number of Representatives to which each State is entitled, and the Clerk must promptly certify the entitlement to the States." Gov't Br. at 31, *Montana*, *supra* (No. 91-860). The government argued that "[j]udical review in this context would seriously disrupt, confuse and delay apportionment within the States. There accordingly is 'an unusual need for unquestioning adherence to a political decision already made.'" *Ibid.* (quoting *Baker* v. *Carr*, 369 U.S. 186, 217 (1962)). In addition, the government pointed out that a judicial order allocating an additional Representative to the State of Montana would effectively require that a Representative be taken away from the State of Washington. The government stated that "because Washington is not a party to the case, the federal district court in Montana could not realistically enforce an order purporting to mandate the transfer of a Representative from Washington to Montana." *Id.* at 32; see also *id.* at 32-33 n.27.

Notwithstanding the federal government's arguments, this Court unanimously held that Montana's challenge to the "equal proportions" formula was justiciable. See 503 U.S. at

456-459. In reaching that conclusion, the Court presumably determined that it was capable of ordering effective relief if it found the statutory apportionment formula to be unconstitutional.

B. In *Franklin* v. *Massachusetts*, 505 U.S. 788 (1992), this Court considered and rejected a constitutional challenge to the manner in which the Census Bureau had allocated overseas federal personnel for purposes of determining the state-level population figures used to apportion Representatives. The government argued that the Secretary's decision was not judicially reviewable because the matter was "committed to agency discretion by law," 5 U.S.C. 701(a)(2), and because the relevant census "statutes preclude judicial review," 5 U.S.C. 701(a)(1). See Gov't Br. at 18-33, *Franklin*, *supra* (No. 91-1502). In support of that position, the government contended that it was "fundamentally incompatible" with the deadlines established by 2 U.S.C. 2a(a) "for a court * * * to review and set aside the apportionment made by the President's statement *after* the Clerk has informed the States of their entitlements." Gov't Br. at 33.

In an opinion concurring in part and concurring in the judgment, Justice Scalia expressed the view that the plaintiffs lacked standing to raise their constitutional claim. Justice Scalia would have held that the plaintiffs' injury was not redressable because the President could not be directed to issue a new certification regarding the number of Representatives to which each State was entitled. See 505 U.S. at 823-829. The other Members of the Court, however, disagreed. Four Justices found the redressability requirement to be satisfied on the ground that "it is substantially likely that the President and other executive and congressional officials would abide by an authoritative interpretation of the census statute and constitutional provision by the District Court, even though they would not be directly bound by such a determination." *Id.* at 803 (opinion of O'Connor, J.).

Four other Justices concluded that the President's role in the statutory scheme was purely ministerial, and that the report of census figures by the Secretary of Commerce was therefore "final agency action" subject to judicial review under the APA. *Id.* at 808-816 (Stevens, J., concurring in part and concurring in the judgment). Those opinions appear to assume that (a) a judicial ruling in favor of the plaintiffs could be expected to trigger a new Executive Branch statement regarding the population of each State, and (b) that statement would be given operative legal effect, notwithstanding the fact that the President had already transmitted his report stating the number of Representatives to which each State was entitled. Cf. *id.* at 824 n.1 (opinion of Scalia, J.).

II. THE CENSUS BUREAU'S USE OF IMPUTATION IN DETERMINING THE POPULATION FOR PURPOSES OF APPORTIONING REPRESENTATIVES AMONG THE STATES IS PERMITTED BY THE CENSUS ACT

A. "Sampling" As Used In 13 U.S.C. 195 Is A Statistical Term Of Art That Refers To A Method Of Data Collection And Does Not Encompass Imputation

1. For purposes of determining the apportionment of Representatives among the States, 13 U.S.C. 195 prohibits "the use of the statistical method known as 'sampling.'" The statutory language clearly expresses Congress's intent to distinguish "sampling" from other "statistical method[s]" and to prohibit only the former. See J.S. App. 18a. In addition, Section 195's reference to "the statistical method *known* as 'sampling'" (emphasis added) reflects Congress's understanding, at the time of the provision's enactment in 1957, that the word "sampling" was a term of art with an established meaning.

Among statisticians, the term "sampling" has a well-accepted meaning and refers to a strategy for *collecting* data.

See J.A. 257-259 (Hogan Decl.); J.A. 291-292 (Declaration of Joseph Waksberg (Waksberg Decl.)). Imputation, by contrast, is a method of *processing* data that have already been collected. *Ibid.* Thus, "sampling and imputation are two completely different procedures, based upon totally distinct principles and serving equally distinct purposes." J.A. 259 (Hogan Decl.) (internal quotation marks omitted).

As a standard textbook published shortly before the 1957 enactment of 13 U.S.C. 195 explained, "[a] sampling method is a method of selecting a fraction of the population in a way that the selected sample represents the population." P. Sukhatme, *Sampling Theory of Surveys with Applications* 1 (1954); see J.A. 260-261 (Hogan Decl.).[3] That is, moreover, the common dictionary meaning of "sampling." See *Webster's Third New International Dictionary* 2008 (1993) (def. 1.b) ("assessment of the quality or character of a whole by examination of a sample"); *ibid.* ("sample"; def. 2.a) ("a representative portion of a whole: a small segment or

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[3] Dr. Sukhatme further explained:

> It is almost instinctive for a person to examine a few articles, preferably from different parts of a lot, before he or she decides to buy it. No particular attention is, however, paid to the method of choosing articles for examination. A wholesale buyer, on the other hand, has to be careful in selecting articles for examination as it is important for him to ensure that the sample of articles selected for examination is typical of the manufactured product lest he should incur in the long run a heavy loss through wrong decision. * * * A sampling method, if it is to provide a sample representative of the population, must be such that all characteristics of the population, including that of variability among units of the population, are reflected in the sample as closely as the size of the sample will permit, so that reliable estimates of the population characters can be formed from the sample.

Sukhatme, *supra*, at 1. That description makes clear that the process of "selecting" a sample to which Dr. Sukhatme referred involves a conscious and deliberate effort, during the design phase of a survey, to identify a subset of the relevant population that is believed to be representative of the whole, and to collect data only from that subset.

quantity taken as evidence of the quality or character of the entire group or lot"). By contrast, imputation in the 2000 census was part of an effort to contact and take account of every individual housing unit, and was used only when missing, incomplete, or contradictory data created obstacles to the accomplishment of a complete census. The imputation used at that stage "was a completely deterministic procedure which utilized data from a predetermined neighbor. There was no process of selecting from among a set of similar units, and, as a result, no sampling." J.A. 290 (Waksberg Decl.).

2. In the district court, appellants submitted the declarations of Drs. Lara J. Wolfson and Donald B. Rubin in support of their claim that hot-deck imputation is a form of statistical sampling. Dr. Wolfson's declaration defined sampling as "the process of selecting a number of subjects [units] from all the subjects [units] in a particular group or universe." J.A. 75 (internal quotation marks omitted). As Dr. Hogan explained, that definition is potentially over-inclusive because it "does not make clear that, in sampling, the process of selecting a sample is a deliberate and purposeful activity occurring during the design phase of a survey." J.A. 260. Dr. Hogan further explained (*ibid.*):

> Without this understanding, Dr. Wolfson's definition is broad enough to cover situations that have nothing to do with sampling. And with this understanding, Dr. Wolfson's definition does not encompass imputation. * * * [I]mputation is not a mechanism for selecting units during the design phase of a census or sample survey, but rather is a means of dealing with missing data in the data processing stage.

Dr. Rubin's declaration similarly defined sampling as "the process of obtaining data from a subset of a population (the subset is usually called the 'sample') from which estimates are made about characteristics of the entire population."

J.A. 59. That definition "suffers from the same flaws as Dr. Wolfson's in that Dr. Rubin's definition does not incorporate the process of *deliberately selecting* a subset of the population *during the design phase of a survey*." J.A. 260 (Hogan Decl.).

In this Court, appellants appear to have abandoned reliance on the Wolfson and Rubin declarations. Their opening brief does not cite either declaration; nor do appellants identify any other authority stating in terms that imputation is a form of "sampling." Appellants rely instead on fragmentary quotations from a handful of scholarly texts that, in appellants' view, define the process of "sampling" in a way that encompasses imputation. See Br. 18-21. Those sources do not support appellants' position, however, because—consistent with the general understanding in the statistical community—they recognize that a process of deliberate selection of a representative subset during the design phase is an integral feature of a "sample." See, *e.g.*, Br. 18 ("sample" is identified "usually by deliberate selection with the object of investigating the properties of the parent population or set") (quoting M. Kendall & W. Buckland, *A Dictionary of Statistical Terms* 254 (1957)); Br. 21 ("'sampling' is understood as 'the selection of part of an aggregate of material to represent the whole'") (quoting F. Yates, *Sampling Methods for Censuses and Surveys* 1 (2d ed. 1953)).

B. The History And Purposes Of 13 U.S.C. 195 Confirm That The Term "Sampling" Refers To A Method Of Data Collection And Does Not Encompass Imputation

The Census Bureau's use of imputation is fully consistent with the congressional judgments that underlie Section 195's ban on the use of sampling for purposes of apportionment.

1. The types of sampling at which Section 195 was originally directed, such as the "long form" used for "gathering supplemental, nonapportionment census information regard-

ing population, unemployment, housing, and other matters collected in conjunction with the decennial census," *House of Representatives*, 525 U.S. at 337, involve efforts to collect data *only* from persons within a selected sample. Congress authorized the use of such sampling procedures for purposes other than apportionment not because they were deemed likely to produce more accurate results than could be obtained through direct inquiries of all members of the population. Rather, the enactment of Section 195 in 1957, and its amendment in 1976, reflected Congress's view that use of sampling techniques can often produce *acceptably accurate* figures while reducing the cost to the government and burden on respondents that the census might otherwise entail. See, *e.g.*, S. Rep. No. 698, 85th Cong., 1st Sess. 3 (1957) ("The proper use of sampling methods can result in substantial economies in census taking."); S. Rep. No. 1256, 94th Cong., 2d Sess. 5 (1976) (stating, with respect to the mid-decade census, that "the use of sampling procedures and surveys is urged for the sake of economy and reducing respondent burden"); see also *id.* at 9, 12, 13.[4] In first authorizing and then directing the Secretary to use "the

[4] See also H.R. Rep. No. 1043, 85th Cong., 1st Sess. 10 (1957) ("The purpose of section 195 in authorizing the use of sampling procedures is to permit the utilization of something less than a complete enumeration, as implied by the word 'census,' when efficient and accurate coverage may be effected through a sample survey."); *Amendment of Title 13, United States Code, Relating to Census: Hearing on H.R. 7911 Before the House Comm. on Post Office and Civil Service*, 85th Cong., 1st Sess. 7 (1957) (Commerce Department's Statement of Purpose and Need explains that "[i]nformation obtained through a survey adds to the census data without the increase in costs which would result by obtaining related information on a complete census basis"); *Department of Commerce and Related Agencies Appropriations for 1958: Hearings Before a Subcomm. of the House Comm. on Appropriations*, 85th Cong., 1st Sess. 679 (1957) (Census Bureau Director explains, with respect to the census of occupation and industry, that "[i]f we can find, say, that a 25-percent sample gives accurate results for what is wanted, we have cut down the work to an important extent").

statistical method known as 'sampling'" (when he considers it feasible) for purposes other than apportionment, Congress was thus motivated by the perceived advantages of sampling *as a data-collection method.*

By the same token, Congress's decision that sampling should *not* be used to determine apportionment figures appears to rest on the view that, with respect to so fundamental an undertaking as the apportionment of Representatives among the States, the Bureau should employ the most comprehensive feasible data-collection efforts. In *House of Representatives*, the Court held that the Section 195 prohibits the use of sampling for apportionment purposes not only as a substitute for, but also as a supplement to, traditional enumeration methods. 525 U.S. at 342. But even when sampling is used to supplement initial good-faith efforts to contact all residents directly, it involves a conscious decision by the Census Bureau to undertake additional data-collection efforts with respect to some housing units while deliberately declining to employ the same efforts for other, comparable units. Under the Census Bureau's initial plan for the 2000 census, for example, the Bureau would have conducted nonresponse followup on only a randomly selected sample of the housing units that did not respond to the mailed questionnaires, until at least 90% of the units in each tract were accounted for. *Id.* at 324. As a result of the Court's decision in *House of Representatives*, however, the Bureau undertook followup efforts with respect to all nonresponding units. A.R. C00278.[5]

In the instant case, the housing units for which population data were imputed were not selected for less intensive data-

[5] The other sampling procedure at issue in *House of Representatives* —Integrated Coverage Measurement—likewise would have involved the deliberate use of more intensive data-collection efforts for housing units within the sample than were employed at other, comparable units. See 525 U.S. at 325.

collection efforts than the units from which the imputed data were drawn. Nor do appellants contend that the Bureau could or should have made additional efforts to contact persons within the units at issue. In fact, their challenge to the Bureau's use of imputation has nothing to do with the manner in which data were collected. Instead, their claim is that, when the Census Bureau was unable to obtain complete and consistent population data regarding a particular housing unit from the unit's occupants or from proxy respondents, the Bureau should have simply attributed zero residents to the unit in question rather than imputing data from a comparable nearby unit—even where the indications were that the unit was occupied and an attribution of zero therefore would have been knowingly inaccurate. Contrary to appellants' contention, however, Congress's decision to prohibit the use of "sampling" in the determination of apportionment figures does not speak to the appropriate choice between those two alternative means of dealing with the inevitable occurrence of missing or contradictory data at the data-processing phase of the census.[6]

2. Precisely because "the process of selecting a sample is a deliberate and purposeful activity occurring during the design phase of a survey," J.A. 260 (Hogan Decl.), it has been

[6] Appellants also contend (Br. 28-29) that Congress could not have intended to ban sampling while allowing imputation because sampling is always more reliable than imputation. In determining whether a particular form of either sampling or imputation will increase the accuracy of the census, the pertinent question is "Compared to what?" With respect to sampling, the appropriate comparison is with alternative data-collection measures. Imputation, by contrast, is used only after all efforts to obtain complete and accurate data have failed, and the alternative to imputation is simply the attribution of zero residents to the relevant unit. In any event, for the purposes of determining whether hot-deck imputation violates the Census Act, the only relevant question is whether imputation is a form of "the statistical method known as 'sampling,'" 13 U.S.C. 195, which it is not. The relative accuracy of imputation and sampling in the quite different contexts in which they are used is irrelevant.

suggested that the use of sampling in determining the population for purposes of apportioning Representatives among the States might give rise to the fact or appearance of political manipulation. Cf. *House of Representatives*, 525 U.S. at 348-349 (Scalia, J., concurring in part). In hot-deck imputation, by contrast, neither the number nor the identity of the "donor" or "donee" units is pre-selected by the Bureau. Indeed, if the Bureau's other efforts to collect missing data and resolve inconsistencies were wholly successful, imputation would not be used at all. Because the imputation of figures to a particular unit is simply an *ex post* response to a gap in the collected data, Congress could reasonably conclude that it is unlikely to be used in a manipulative fashion.

Appellants contend (Br. 27-28) that if the hot-deck method is permitted, the Bureau could expand its use of imputation by reducing the resources devoted to nonresponse followup. But whether or not the Bureau uses imputation at the data-processing stage, it has very substantial latitude to determine what followup data-collection efforts should be employed for housing units that fail to respond to the initial questionnaire. If the Census Bureau automatically attributed zero occupants to each unit for which its data-collection efforts were unsuccessful or incomplete, rather than imputing household size or occupancy information from a comparable nearby unit, changes in the Bureau's nonresponse follow-up procedures could be expected to have much more substantial effects on the final population counts. The Bureau's use of hot-deck imputation therefore mitigates rather than increases any danger that might be thought to exist that the data-collection process could be subject to political manipulation.

3. Section 195 should be construed in light of the Census Act as a whole, which confers extremely broad discretion on the Secretary. See 13 U.S.C. 141(a) (Secretary may conduct the decennial census "in such form and content as he may

determine"); *Wisconsin* v. *City of New York*, 517 U.S. 1, 19 (1996) (noting that in Section 141(a), "Congress has delegated its broad authority over the census to the Secretary"). Section 195's ban on sampling in the apportionment context does not reflect a systematic congressional effort to micromanage the census; it is instead a focused exception, confined to a particular statistical methodology, to a general rule of broad deference to the Secretary's judgment and expertise. Because hot-deck imputation is not (and was not in 1957) regarded within the statistical community as a form of "sampling," the determination whether imputation shares practical shortcomings similar to those of sampling is entrusted to the Secretary, not to the courts.

C. The Census Bureau Has Consistently Interpreted Section 195 Not To Prohibit Imputation, And Congress Has Not Disapproved That Understanding

1. In holding that 13 U.S.C. 195 bars the use of sampling in determining the apportionment counts, the Court in *House of Representatives* relied in part on prior Census Bureau pronouncements construing the statute to impose such a prohibition. See 525 U.S. at 340. By contrast, the Bureau has used count imputation in every census since 1960 and has never expressed any doubt as to its legality. See J.A. 267-275 (Hogan Decl.) (describing the Bureau's use of count imputation in 1960-1990 censuses). Testifying at a 1991 congressional oversight hearing, for example, Census Director Barbara Bryant included imputation in her description of longstanding decennial census procedures:

> After all efforts are made through mail, personal interview, repeat visits to each housing unit, talking to neighbors, observation, coverage improvement operations, and so on, to identify and complete the enumeration for every housing unit, we still have a certain level of unfinished work. That is, our address control file contains housing units that have been identified by our enumerators as occupied but for which they were not able to collect population information. We also have housing units where it is not known whether the unit is occupied or vacant. *In either of these cases, for the last several censuses, we have determined that the counts are improved if we use a procedure to impute persons for these units, rather than just assume there are no persons in these units.*

A.R. C01287 (emphasis added). Similarly, in its formal published report announcing the Secretary's decision not to make a statistical adjustment of the 1980 census figures based on sampling, the Bureau explained that the "1980 census data covering the vast majority of Americans will result from a pure count in the full tradition and practice of actual enumeration." 45 Fed. Reg. 69,373 (1980). The Bureau then described its conduct of the 1980 census, including its use of count imputation. *Ibid.* (explaining that, after several visits to a housing unit, "[i]f the number of occupants is unknown, an entire set of characteristics for a neighboring household is substituted"); see also A.R. C00679 (General Accounting Office official explains in 1991 that "[d]ue to concerns about the legality of sampling, the Bureau did not use sampling techniques as part of the 1980 census but did impute about 762,000 persons into the census count.").

The Bureau's use of count imputation during the 1980 census is especially significant because it affected the composition of the House of Representatives, with Florida receiving a Representative that would have been apportioned to Indiana if imputation had not been used. In the ensuing litigation in *Orr* v. *Baldrige*, No. IP-81-604-C (S.D. Ind. July 1, 1985) (J.A. 110-119), the Bureau explained its justifications for using imputation and the basis for its interpretation that imputation is not a form of "sampling" within the meaning of Section 195, and the district court issued an opinion endorsing the Bureau's view of Section 195 that would surely have

come to the attention of Congress. See J.A. 89-97 (Affidavit of Barbara A. Bailar filed in *Orr* (Bailar Aff.)); J.A. 110-119 (*Orr* district court opinion).[7]

2. Notwithstanding the Census Bureau's use of count imputation in every decennial census starting in 1960, and its longstanding interpretation that imputation is not a form of "sampling" within the meaning of Section 195, appellants repeatedly suggest (see Br. 6-7, 15, 18, 20, 22) that the Bureau's current construction of Section 195 represents an eleventh-hour reversal precipitated by this Court's decision in *House of Representatives*. Appellants' argument on that score rests almost exclusively on misleading partial quotations from the Bureau's August 1997 *Report to Congress* concerning the 2000 census. See Appellants' Br. 15, 18, 20, 22. The full passage is as follows:

> In our common experience, "sampling" occurs whenever the information on a portion of a population is used to infer information on the population as a whole. We use samples every day to characterize a larger group—for manufacturing quality checks, for medical tests, for determining air and water quality, and for conducting audits, to name a few. In laymen's terms, a "sample" is taken whenever the whole is represented by less than the whole. *Among professional statisticians, the term "sample" is reserved for instances when the selection of*

[7] The government's affiant in *Orr* explained, in terms consistent with the Bureau's current interpretation:

> Sampling is used where a scientifically selected set of units can be used to represent the entire population from which they are drawn and inferences to the entire population can be based on sample results. Imputation is a procedure for determining plausible value[s] for missing data. Imputation is used in both sample surveys and censuses with the goal of achieving as complete as possible an enumeration of the sampled or population units.

J.A. 92-93 (Bailar Aff.).

> *the smaller population is based on the methodology of their science.*

A.R. C00155 (emphasis added).

As the underscored language makes clear, the Bureau's understanding of "sampling" as a technical term of art reflected in the 1997 *Report to Congress* does not encompass imputation. Under the hot-deck method, each individual "donor" unit is used because it bears a particular relation to a unit for which the Bureau is (for whatever reason) unable to obtain complete and consistent population data. *After* the census has been completed, it is possible to identify the "donor" units that were used in the imputation process and to characterize the class of persons within those units, taken together, as a subset of the national population. But the class (*qua* class) of persons within the donor units is simply the fortuitous result of the Bureau's inability to obtain pertinent information regarding other particular residences. The class is not (in statistical terminology) a "sample" because it is not selected "based on the methodology of [statistical] science" (*Report to Congress*, A.R. C00155) and does not reflect a "deliberate and purposeful activity occurring during the design phase of a survey" (J.A. 260 (Hogan Decl.)).[8]

[8] Appellants also attach significance (see Br. 22) to the fact that the 1997 *Report to Congress* contains a discussion of imputation under the subheading "Reliance on Sampling in Previous Censuses." A.R. C00155. The discussion itself, however, does not state or in any way imply that the Bureau regards imputation as a form of "sampling." Rather, that discussion is offered to support the proposition that "Census 2000 will not be the first time that the Census Bureau has used *statistical methods* to correct for problems in physical enumeration and to provide a more accurate final result." *Ibid.* (emphasis added). Later in the same paragraph, the *Report to Congress* uses the term "sampling" with specific reference to the 1970 Postal Vacancy Check. *Ibid.* Unlike the imputation processes at issue here, the Postal Vacancy Check *did* involve the conscious selection of certain housing units for more intensive data-collection efforts than were employed at other, comparable units. See A.R. C00404; J.A. 269 (Hogan Decl.).

3. The Bureau's longstanding interpretation that hot-deck imputation is not a form of "sampling" within the meaning of 13 U.S.C. 195 is entitled to judicial deference under the principles announced in *Chevron U.S.A. Inc.* v. *NRDC*, 467 U.S. 837, 842-845 (1984). Compare *House of Representatives*, 525 U.S. at 340-341 (noting that the Commerce Department did not invoke principles of *Chevron* deference in that case in light of the agency's changing views on the question whether Section 195 prohibits the use of "sampling" in the determination of apportionment figures). Deference to the Bureau's reading of the disputed language is particularly appropriate for at least four reasons. *First*, Section 195 was enacted in 1957 at the request of the Secretary of Commerce, see *House of Representatives*, 525 U.S. at 336; the Bureau's use of count imputation beginning in the 1960 census thus reflects the contemporaneous understanding of the agency that had proposed the pertinent statutory language that Section 195's prohibition on "sampling" for purposes of apportionment does not encompass imputation. See *Norwegian Nitrogen Prods. Co.* v. *United States*, 288 U.S. 294, 315 (1933). *Second*, because Congress utilized a term of art having an established meaning within the statistical community, interpretation of Section 195 rests in part on a technical judgment as to which the Bureau possesses substantial expertise. *Third*, deference to the Bureau on this question is consistent with the overall thrust of the Census Act, which vests the Secretary with very broad authority to conduct the decennial census "in such form and content as he may determine." 13 U.S.C. 141(a); see *City of New York*, 517 U.S. at 19; pp. 23-24, *supra*.

Fourth, deference to an agency's interpretation of disputed statutory language is especially appropriate where, as here, Congress has amended other provisions of the relevant law without disturbing the settled agency practice regarding the matter in question. See, *e.g.*, *United States* v. *Rutherford*, 442 U.S. 544, 554 n.10 (1979) ("[O]nce an agency's statutory construction has been fully brought to the attention of the public and the Congress, and the latter has not sought to alter that interpretation although it has amended the statute in other respects, then presumably the legislative intent has been correctly discerned.") (internal quotation marks omitted). In 1976, when Congress amended Section 195 without change pertinent to this issue, the Census Bureau had already used imputation for apportionment purposes in two decennial censuses. The Bureau again used imputation in 1980 (with the effect of shifting a Representative from Indiana to Florida, leading to the *Orr* litigation) and in 1990, and it has repeatedly apprised Congress of that practice. Before the 2000 census, the Bureau presented its plan, including the use of imputation, to relevant congressional committees, the General Accounting Office, the Census Monitoring Board (created by Congress in 1998 to oversee the census), the Inspector General, and numerous advisory committees. See J.A. 280-281 (Hogan Decl.); A.R. C01519, C01731, C01752, C01805, C01818-C01819.

While proposals to use sampling have been highly controversial in Congress and elsewhere over the past two decades —resulting in two decisions by this Court (in *City of New York* and *House of Representatives*)—the Bureau's longstanding use of imputation has generated no such controversy, and the only court to address the question found it lawful under Section 195. See J.A. 110-119 (*Orr*). Against this background, it is especially significant that while Congress has amended the Census Act in other respects on a number of occasions, it has not restricted the Bureau's use of imputation.[9] That pattern of congressional acquiescence

[9] See, *e.g.*, Act of Oct. 9, 1998, Pub. L. No. 105-252, 112 Stat. 1886; Paperwork Reduction Act of 1995, Pub. L. No. 104-13, 109 Stat. 163; Census Address List Improvement Act of 1994, Pub. L. No. 103-430, 108 Stat. 4393; Act of Oct. 12, 1993, Pub. L. No. 103-105, 107 Stat. 1030; For-

provides further evidence of the reasonableness of the Bureau's position.

D. The Bureau's Use Of "Occupancy" And "Status" Imputation Does Not Violate Section 195

Appellants also contend (Br. 30-35) that, even if "household size" imputation is permissible, Section 195 forbids the use of "occupancy" or "status" imputation. See pp. 6-7, *supra* (describing three forms of imputation). "Occupancy" and "status" imputation were used "[w]hen Census Bureau records indicated that a housing unit existed but not whether it was occupied or vacant," and "[w]hen the Census Bureau's records had conflicting or insufficient information about whether an address represented a valid, nonduplicated housing unit." J.A. 255 (Hogan Decl.); see p. 7, *supra*. Appellants' argument lacks merit.

1. The Census Bureau employed "household size" imputation "when Bureau records indicated that the housing unit was occupied, but did not show the number of individuals residing in the unit." J.A. 255 (Hogan Decl.); see J.A. 444; p. 6, *supra*. In that situation, the Bureau drew the imputed data from a comparable housing unit in the same tract. J.A. 256-257 (Hogan Decl.). Appellants' basic textual theory—that any "statistical procedure in which information on a portion of a State's population * * * is used to infer information about unobserved segments of the population," Appellants' Br. 19 (internal quotation marks omitted), is a form of "sampling" within the meaning of Section 195—would, if accepted, compel the conclusion that "household size" imputation may not be used for purposes of apportionment. Appellants offer no alternative definition of "sampling" that would encompass "occupancy" and "status" imputation while excluding "household size" imputation.

eign Direct Investment and International Financial Data Improvements Act of 1990, Pub. L. No. 101-533, 104 Stat. 2344; Act of Nov. 5, 1990, Pub. L. No. 101-506, 104 Stat. 1339; Act of Oct. 27, 1986, Pub. L. No. 99-544, 100 Stat. 3046; Act of Oct. 14, 1986, Pub. L. No. 99-467, 100 Stat. 1192.

The real thrust of appellants' argument on this score is simply that, in their view, "occupancy" and "status" imputation are less likely to improve the accuracy of the census than is "household size" imputation. Such differences in accuracy would, if established, be relevant to the question whether a decision by the Bureau to use "occupancy" or "status" imputation was arbitrary or capricious under the APA; but they are irrelevant (on appellants' own theory) to the question whether those methods are prohibited by Section 195. Appellants sought to raise an APA challenge in the district court, but the court held that claim to be nonjusticiable (see J.S. App. 9a, 12a-15a), and appellants did not contest that ruling on appeal. Appellants' attack on "occupancy" and "status" imputation is simply an attempt to revive that claim under the guise of a Census Act challenge.

2. The policy arguments favoring "household size" imputation are particularly strong, since in that context the alternative to imputation—attributing zero residents to a housing unit that is known to be occupied—will produce demonstrably inaccurate results with respect to every unit. The Bureau's considered judgment, however, is that "occupancy" and "status" imputation will also increase the accuracy of the census. That view is supported by the Bureau's longstanding experience and by ample scientific evidence. After analyzing the 1980 census imputation procedures, for example, the Bureau concluded in 1988 that "data on the correlations between neighboring units indicated that using a previously processed unit would be much more accurate in predicting occupancy status than leaving the questionnaires as vacant." J.A. 213; see also A.R. C01287 (Census Bureau Director explains in 1991 that "for the last several censuses, we have determined that the counts are improved if we use ['household size' and 'occupancy' imputa-

tion] * * * rather than just assume there are no persons in these units") (quoted at p. 25, *supra*).

3. Contrary to appellants' suggestion (Br. 8, 9), the Bureau's use of "status" imputation did not involve "phantom housing units." All of the units for which "status" imputation was used were at addresses included in the Bureau's Decennial Master Address File (DMAF). See J.A. 256 (Hogan Decl.). Indeed, approximately 75% of those units had been added to the DMAF during the 2000 census by field enumerators or by respondents themselves. See J.A. 445-446. Although various data-processing problems resulted in the absence of particular data for those "census adds," the Bureau had a substantial basis for regarding those units as valid residential addresses. See J.A. 446-447; compare *Franklin*, 505 U.S. at 806.

III. THE CENSUS BUREAU'S USE OF IMPUTATION IS CONSISTENT WITH THE CENSUS CLAUSE OF THE CONSTITUTION

Appellants contend that even if the Census Act authorized the Secretary to use imputation in the census in 2000 (and the four preceding decades), the Constitution barred Congress from authorizing the Secretary to do so. Appellants' contention is inconsistent with the text and structure of the Constitution, the debates in the Constitutional Convention, the history of the implementation of the Census Clause by Congress and the Secretary, and the constitutional goal of equal representation. Whatever limitations the Census Clause may place on other methodologies, it does not prohibit the use of imputation to correct for missing, incomplete, or contradictory data as part of a traditional, household-by-household census.

A. The Text Of The Census Clause Does Not Prescribe A Particular Method Of Determining The Population

Appellants' contention that the Constitution bars the use of imputation rests entirely on the presence of the word "Enumeration" in the Census Clause of the Constitution. That word was not intended, however, to place rigid limitations on Congress in providing for the manner in which the decennial census will be conducted, and in particular it does not prohibit the use of the widely accepted statistical methodology of imputation.

The Oxford English Dictionary (*OED*) gives as its primary definition of the word "enumeration" "[t]he action of ascertaining the number of something; *esp.* the taking [of] a census of population; a census." 3 *OED* 227 (1933). The *OED* states that the word "enumeration" has been used in that manner since at least 1577. *Ibid.* The Bureau's use of imputation in the 2000 census indisputably was part of a method "of ascertaining the number of" persons—"a census of population"—within each State.

The structure of Article I, Section 2, Clause 3, reinforces the conclusion that the Framers did not intend to prescribe a particular census methodology. The first sentence of the Clause states that "Representatives * * * shall be apportioned among the several States * * * according to their respective Numbers." The next sentence of the Clause provides: "The actual Enumeration shall be made within three Years after the first Meeting of the Congress of the United States, and within every subsequent Term of ten Years, in such Manner as [Congress] shall by Law direct." The Clause's use of the definite article ("*The* actual Enumeration") presumes that the concept of an "Enumeration" refers back to or is implicit in what has come before — *i.e.*, in the requirement that the apportionment of Representatives be based upon the States' "respective Numbers"—rather

than a further constraint on the discretion of Congress (such as a specification of the means by which those numbers are to be determined).

Thus, the first sentence of Article I, Section 2, Clause 3 states the principle that apportionment of Representatives will be based on the respective total populations of the States, and the first portion of the next sentence then specifies when the ascertainment of those total populations will "actual[ly]" occur, in order to carry the constitutional principle into effect. That understanding is supported by the contemporaneous understanding of the word "actual." See S. Johnson, *A Dictionary of the English Language* (1755) ("That which comprises action"; "Really in act; not merely potential"; "In act; not purely in speculation"). The *means* by which the "Enumeration" will be "made" are addressed not by that first portion of the sentence (including the words "actual Enumeration"), but by the second portion, which simply provides that the task will be accomplished "in such Manner as they [Congress] shall by Law direct." Those are words of authorization, not limitation.

The conclusion that the word "Enumeration" in the Census Clause does not impose a rigid limitation on the manner in which the "respective Numbers" of the States are ascertained is reinforced by Article I, Section 9, Clause 4 of the Constitution, which provides that "[n]o Capitation, or other direct, Tax shall be laid, unless in Proportion to the Census or Enumeration herein before directed to be taken." The phrase "Census or Enumeration herein before directed to be taken" can only be understood to refer to the "actual Enumeration" mandated by Article I, Section 2, Clause 3. Article I, Section 9, Clause 4 is significant in two respects. First, by providing that a direct tax must be "in Proportion to the Census or Enumeration," the Clause uses the term "Census or Enumeration" to refer to the respective *total populations* of the States (and territories), rather than to the

process by which those populations are to be ascertained. Cf. *Loughborough* v. *Blake*, 18 U.S. (5 Wheat.) 317, 321-322 (1820). The Framers' use of the word "Enumeration" in that distinct sense undermines appellants' contention that the word had a settled and precise meaning and necessarily refers in the Census Clause to a specific method of determining the States' "Numbers." See also note 11, *infra*.

Second, the Capitation Clause's reference to a "Census or Enumeration" strongly indicates that the Framers used the word "enumeration" as synonymous with "census" of population. See *Loughborough* v. *Blake*, 18 U.S. (5 Wheat.) at 321 (describing Article I, Section 2, Clause 3 as providing for a "census" and observing that "[t]he census referred to is admitted to be a census exhibiting the numbers of the respective States"); *The Federalist* No. 36, at 220 (Hamilton) (C. Rossiter ed. 1961) ("An actual census or enumeration of the people must furnish the rule."). We may assume that the Framers anticipated that the census they povided for would be a systematic undertaking to ascertain the States' populations, and that some methodologies for determining those populations might vary so substantially from what could reasonably be regarded as a "Census or Enumeration" as to violate the Constitution. But while the Census Clause may preclude Congress from supplanting a census with a completely different method of ascertaining state populations, nothing in the constitutional text suggests that the household-focused hot-deck imputation that the Census Bureau has used since 1960 cannot be a legitimate part of a systematic "Census" or "Enumeration." "As a rule the Constitution speaks in general terms, leaving Congress to deal with subsidiary matters of detail as the public interest and changing conditions may require." *Nixon* v. *United States*, 506 U.S. 224, 230 (1993) (internal quotation marks omitted).

B. The Drafting History Of The Constitution Confirms That The Framers Did Not Intend To Prescribe A Particular Method Of Taking The Census

In *Wesberry* v. *Sanders*, 376 U.S. 1, 10-14 (1964), this Court summarized the debates at the Constitutional Convention concerning the basis upon which the representation of the States in Congress would be determined. Delegates from the larger States argued that each State's representation should be determined on the basis of population; those from the smaller States contended that each State should have an equal number of Representatives. *Id.* at 10-11. The dispute was finally resolved by means of the Great Compromise, under which representation in the Senate was divided evenly among the States, while the Members of the House of Representatives were "apportioned among the several States . . . according to their respective Numbers." *Id.* at 13 (quoting U.S. Const. Art. I, § 2, Cl. 3). The Court in *Wesberry* further observed that "[t]he Constitution embodied Edmund Randolph's proposal for a periodic census to ensure 'fair representation of the people,' an idea endorsed by Mason as assuring that 'numbers of inhabitants' should always be the measure of representation in the House of Representatives." *Id.* at 13-14 (footnote omitted).

The drafting history of the Census Clause strongly indicates that the Framers did not regard the word "Enumeration" as mandating any particular means of taking the census. Edmund Randolph made the first specific proposal, moving that the Convention adopt a provision stating "that in order to ascertain the alterations in the population & wealth of the several States the Legislature should be required to cause a census, and estimate to be taken within one year after its first meeting; and every ____ years thereafter—and that the Legisl[ature] arrange the Representation accordingly." 1 *The Records of the Federal Convention of 1787*, at 570-571 (M. Farrand ed., 1966) (Farrand).

Subsequent versions of that provision consistently used the word "census"; none used the word "enumeration." See *id.* at 575, 594, 595, 600.

The Committee of Detail subsequently prepared a draft Constitution incorporating the resolutions passed by the Convention. Article IV, Section 4 of the draft Constitution directed Congress to "regulate the number of representatives by the number of inhabitants, according to the provisions herein after made, at the rate of one for every forty thousand." 2 Farrand 178. The "provisions herein after made" for determining "the number of inhabitants" were contained in Article VII, Section 3 of the draft, which provided:

> The proportions of direct taxation shall be regulated by the whole number of white and other free citizens and inhabitants, of every age, sex and condition, including those bound to servitude for a term of years, and three fifths of all other persons not comprehended in the foregoing description, (except Indians not paying taxes) *which number shall, within six years after the first meeting of the Legislature, and within the term of every ten years afterwards, be taken in such manner as the said Legislature shall direct.*

Id. at 182-183 (emphasis added). The effect of those provisions, read together, was that Congress was directed to "regulate the number of representatives by the number of inhabitants, * * * which number shall * * * be taken in such manner as [Congress] shall direct." The relevant provisions of the Committee of Detail's draft imposed no restriction on the "manner" in which the "number" of each State's inhabitants would be "taken."

After receiving the Committee of Detail's report, the Convention devoted approximately one month to section-by-section analysis of the draft Constitution. See 2 Farrand

190-564. The provisions set forth above were amended in minor respects not relevant here. See *id.* at 219-223, 339, 350-351, 357. Those provisions were approved by the Convention in their amended form, and the revised draft Constitution was referred to the Committee of Style and Arrangement. See *id.* at 565, 566, 571.

The Committee of Style reorganized the provisions relevant here, moving the provision for ascertaining the number of inhabitants from a separate article dealing solely with direct taxation to an earlier article dealing with both the apportionment of Representatives and direct taxation. 2 Farrand 590. The words "actual Enumeration" first appeared in that draft, to introduce a sentence that (like the Census Clause as finally adopted) had the principal purpose of specifying *when* the respective numbers of the States would actually be ascertained (within three years after the first meeting of Congress and every ten years thereafter). No delegate suggested that the Committee of Style's introduction of the words "actual Enumeration" was intended to affect the scope of Congress's authority to conduct the census in the manner that it believed appropriate. Indeed, the text of the Committee's proposal weighs strongly against such an inference, for it carried forward the provision that the task will be performed "in such manner as they [Congress] shall by law direct." *Id.* at 590-591.

This drafting history indicates that the Framers regarded the "caus[ing]" of a "census," the "tak[ing]" of each State's "number," and the "ma[king]" of "[t]he actual Enumeration" as interchangeable concepts. The perceived equivalence between a "census" and an "enumeration" reflects the Framers' expectation that the States' "number[s]" would be ascertained by means of a systematic undertaking, but it does not suggest an intent to limit Congress's choice of census methodologies. See pp. 34-35, *supra*.

This Court has recognized that "the Committee of Style had no authority from the Convention to alter the meaning" of the draft Constitution submitted for its review and revision. *Nixon*, 506 U.S. at 231; accord *Powell* v. *McCormack*, 395 U.S. 486, 538-539 (1969). The limited nature of the Committee of Style's mandate does not mean that the Committee's changes "c[an] be disregarded." Appellants' Br. 48. In interpreting ambiguous provisions of the Constitution in its final form, however, the Court "must presume that the Committee's reorganization or rephrasing accurately captured what the Framers meant in their unadorned language" —*i.e.*, "that the Committee did its job." *Nixon*, 506 U.S. at 231. Because the word "Enumeration" is susceptible of different meanings—and because the structure of both the Census Clause and the Capitation Clause as reported by the Committee of Style cuts *against* appellants' interpretation (see pp. 33-34, 34-35, *supra*)—the phrase "actual Enumeration" should be construed in a manner that renders it consistent with the language previously approved by the Convention, which stated simply that the "number" of persons within each State "shall * * * be taken in such manner as the said Legislature shall direct." 2 Farrand 183, 571; compare 3 *OED* at 227 (explaining that the word "enumeration" has long been used to mean "[t]he action of ascertaining the number of something"); p. 33, *supra*.[10]

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[10] In *Nixon*, the Court construed Article I, Section 3, Clause 6 of the Constitution, which provides that "[t]he Senate shall have the sole Power to try all Impeachments." See 506 U.S. at 229. The Court rejected the petitioner's contention that "the word 'sole' has no substantive meaning" because it was added by the Committee of Style. *Id.* at 231. Even without the word "sole," however, the sentence in question might reasonably have been construed to give the Senate exclusive authority to try impeachments; the Committee of Style's addition of that word could therefore be understood as clarifying rather than altering the meaning of the earlier draft. By "presum[ing] that the [Style] Committee's reorganization or rephrasing accurately captured what the Framers meant in their unadorned language," *ibid.*, the Court was therefore able to read the per-

The fact that the Census Clause uses the word "actual" in conjunction with "Enumeration" also does not require a particular census methodology. Rather, the words "actual Enumeration" simply referred to the concrete undertaking of determining the population of the States, in order to furnish the data necessary to carry into effect the constitutional rule (set forth in the preceding sentence) that Representatives "shall be apportioned among the several States * * * according to their respective Numbers." See p. 35, *supra*. The words "actual Enumeration" also serve to distinguish the basis for apportioning Representatives that was to commence within three years of the first meeting of Congress from the temporary allocation set forth in the final sentence of Article I, Section 2, Clause 3, which specified the number of Representatives to which each State would be entitled until the first "enumeration" had been made. Indeed, delegates at the Constitutional Convention used the phrase "actual census" in contradistinction to that provisional apportionment, which was based largely on conjecture about the respective populations of the States. See 1 Farrand 602 (Oliver Elseworth stated that the allocation of taxes on the basis of the provisional apportionment "will be unjust until an actual census shall be made."); *ibid.* (George Mason "doubted much whether the conjectural rule which was to precede the census, would be as just, as it would be rendered by an actual census.").[11]

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tinent provision in a way that was faithful both to the draft Constitution and to the text as finally agreed to by the Convention. In the present case, by contrast, appellants do not contend that the draft language adopted by the Committee of Detail could reasonably be construed to require a particular method of determining the population. Their argument thus reduces to the assertion that the Committee of Style added a substantive limitation on Congress's authority that the earlier draft did not impose. That theory is inconsistent with the "presum[ption] that the Committee [of Style] did its job." *Ibid.*

[11] The Act of Congress providing for the first decennial census used the word "enumeration" in ways that also did not refer to a particular method of conducting the census. The Act began by stating "[t]hat the marshals of the several districts of the United States shall be, and they are hereby authorized and required to cause the number of the inhabitants within their respective districts to be taken; omitting in such enumeration Indians not taxed, and distinguishing free persons, including those bound to service for a term of years, from all others." Act of Mar. 1, 1790, ch. 2, § 1, 1 Stat. 101. That language suggests that the First Congress regarded the concept of "enumeration" as synonymous with that of "*caus[ing] the number of the inhabitants * * * to be taken.*" The Act also required each marshal to take an oath pledging that "I will well and truly cause to be made, a just and perfect enumeration and description of all persons resident within my district, *and return the same to the President of the United States.*" *Ibid.* (emphasis added). The requirement that the marshal "return" to the President the "enumeration and description" of the people within his district suggests that "enumeration" was used there to refer to the final product of the census—*i.e.*, the population totals themselves—as distinct from the process by which those totals were derived. That understanding is confirmed by Section 3 of the Act, which provided for the Marshals to transmit to the President only "the *aggregate* amount of each description of persons within their respective districts." 1 Stat. 102 (emphasis added). Finally, Section 1 of the 1790 Act stated that "[t]he enumeration shall commence on the first Monday in August next, and shall close within nine calendar months thereafter," 1 Stat. 101—language suggesting that the word was used there to denote the conduct of the census, although not any particular methodology.

C. Since The First Census, The Populations Used For Apportionment Have Been Based On Information Concerning The Aggregate Number Of Persons In A Dwelling Unit And Have Included Persons Of Whom The Government Lacked "Actual Knowledge"

Relying on certain definitions of "enumerate" and "enumeration" drawn from dictionaries roughly contemporaneous with the Founding, appellants contend that the Census Bureau's use of imputation is inconsistent with "[t]he notion of 'counting "singly," "separately," "number by number," "distinctly," which runs through these definitions.'" Br. 36 (quoting *House of Representatives*, 525 U.S. at 347 (Scalia, J., concurring in part)). Appellants also contend that imputation "falls short of an actual enumeration" because "the

Bureau had no actual knowledge as to the number of occupants that live in a housing unit estimated through this procedure." Br. 37. The federal officials charged with conducting the decennial census have never attempted, however, to contact each of the Nation's residents directly (or literally to count every head). Rather, from the time of the First Congress, the conduct of the decennial census has involved techniques designed to obtain and use reliable information concerning the number of persons residing in particular dwelling units. And while the Bureau and its predecessors have always first attempted to obtain such information from a member of the relevant household, they have long relied on a variety of alternative sources of information when efforts to establish such direct contact are unsuccessful. Imputation is fully consistent with the household-by-household approach traditionally used to conduct the decennial census.

1. The Act providing for the 1790 decennial census stated that each "assistant" was to return to the appropriate United States marshal a schedule identifying all heads of households within the assistant's district, together with the number of persons in each household falling within each of five categories (free white males of sixteen years and upwards, free white males under sixteen years, free white females, all other free persons, and slaves). Act of Mar. 1, 1790, ch. 2, § 1, 1 Stat. 102; see *House of Representatives*, 525 U.S. at 335. Nothing in the 1790 Act required the marshals or their assistants to report or record individual names. See note 11, *supra*. Nor did the Act specify the manner in which the relevant information was to be obtained, though it did require "each and every person more than sixteen years of age" to furnish accurate information if questioned by an assistant. § 6, 1 Stat. 103. In ensuing years, "when a member of the household could not be found, census-takers have historically relied on information from neighbors, landlords,

postal workers, or other proxies." J.A. 253 (Hogan Decl.); see Act of Mar. 3, 1879, ch. 195, § 8, 20 Stat. 475. In 1964, Congress amended the Census Act to "permit[] the Bureau to replace the personal visit of the enumerator with a form delivered and returned via the Postal Service." *House of Representatives*, 525 U.S. at 337.

Thus, the decennial census has traditionally been conducted on a household-by-household rather than individual-by-individual basis. And while the evidence on which the apportionment counts are largely based (*e.g.*, the representation by a head-of-household or proxy respondent that a particular number of persons reside at a particular address, or a mail-in form to the same effect) is generally reliable, it is not absolutely reliable, and it does not give the Census Bureau "actual knowledge" (at least in the sense of direct firsthand observation) of all persons included in the counts. In determining the likely number of residents within a given housing unit, data imputed from a comparable nearby unit are concededly less accurate than information provided by a household member or proxy respondent—hence the Bureau's decision to use imputation only as a last resort. That, however, is simply a difference of degree: the use of imputation does not differ in kind from the federal government's prior reliance on other evidence of household size that, while imperfect, is deemed sufficiently reliable to improve the accuracy of the count.

For this reason, even if the words "actual Enumeration" limit Congress's discretion as to the manner in which the census is conducted, and the word "Enumeration" is read restrictively, the imputation techniques that the Census Bureau has employed beginning with the 1960 census are fully in keeping with traditional practice. Even in 1790, the federal officials charged with conducting the census attempted to ascertain the number of the States' inhabitants "separately," "number by number," "distinctly," or "singly,"

House of Representatives, 525 U.S. at 347 (opinion of Scalia, J.) (citations to dictionaries omitted), only in the sense of seeking to make separate contact with every household in order to obtain the most accurate possible numbers of persons in each. The 2000 census was based on the same household-by-household approach to ascertaining total population figures. The imputation feature of the 2000 census was employed as a part of an actual count, and only to the extent necessitated by the practical realities of the census. It was not an effort to supplant such a count, nor was it based on "gross statistical estimates." *Ibid.*

As part of its traditional household-by-household approach, the Bureau sought, through imputation, to increase the accuracy of the total population counts by deriving more accurate figures (as compared to the attribution of zero residents) for those individual dwelling units for which data were missing, incomplete, or contradictory. Consistent with historical practice, the Bureau made extensive efforts in the 2000 census to establish direct contact with an occupant of every housing unit, or with another person having some knowledge of the unit. In employing imputation as a last resort, the Census Bureau has simply expanded the range of evidence that may be used to ascertain the number of residents of a particular unit when the Bureau is unable to obtain complete and consistent information from the unit's occupants. Nothing in the text or history of the Census Clause suggests that the Framers sought to preclude Congress from authorizing the Census Bureau to make that sort of expert judgment or to limit the types of evidence on which Congress and the Bureau may rely.[12]

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[12] By contrast, the sampling procedures at issue in *House of Representatives*—particularly Integrated Coverage Measurement, see 525 U.S. at 325-326—were designed to increase accuracy at higher levels of aggregation but not to improve household-level accuracy, and they were not part of a comprehensive household-by-household approach.

2. Appellants contend (Br. 38-46) that the Framers were familiar with various means of estimating the population and deliberately adopted constitutional language that would preclude such techniques. The historical evidence on which appellants rely suggests that the Framers drew a general distinction between systematic empirical efforts to count the population through actual inquiry of the people, and attempts to supply population figures by other means, chiefly by inferences from pre-existing data that had initially been compiled for other purposes. See, *e.g.*, T. Pitkin, *Statistical View of the Commerce of the United States of America* 582-583 (1835) ("In some of the colonies, * * * actual enumerations were made * * *; while in others, estimates were made, founded upon the number of taxable polls, or the number of the militia."). Although appellants' suggested dichotomy between "counting" and "estimating" the population may serve to identify polar extremes (*i.e.*, to identify a method of determining population that is not itself a census), it provides little help in determining what (imperfect) evidence the Census Bureau may rely upon, as part of an overall effort to count the population, to support an inference that a particular number of persons reside in a particular housing unit.

In their jurisdictional statement, appellants asserted that the relevant historical evidence "shows that the phrase 'actual Enumeration' was understood (in the language of the Framers' day) to prescribe an individualized, person-by-person count of the population based on data from those with first-hand knowledge of the matters reported." J.S. 24. In their brief on the merits, however, appellants retreat from their earlier advocacy of an "individualized, person-by-person count" by acknowledging (Br. 37) that "traditional methods of enumeration have always included gathering data from heads of households on individuals not physically present." Appellants' merits brief also contains no reference to a

requirement that population data be obtained from persons "with first-hand knowledge of the matters reported." Appellants' seeming abandonment of a "first-hand knowledge" test is well-advised, since federal officials in conducting the census have long relied on proxy respondents who may lack such knowledge.[13] But appellants' continued tinkering with their proposed definition of the word "enumeration" (even as they purport to rely on the word's supposedly settled meaning during the Founding era) underscores the fundamental point that neither the constitutional text itself, nor the purported dichotomy between "counting" and "estimation," identifies the type or quantum of evidence from which the Bureau may infer that a particular number of persons resided in a specific housing unit.

D. The Census Bureau's Use Of Imputation In The Last Five Censuses Has Furthered The Equal Representation Goal Of The Apportionment And Census Clauses

The requirement that a new "Enumeration" be conducted within every ten-year period was intended to ensure that the apportionment of Representatives would continue to correspond to the "respective Numbers" of the "several States." The delegates to the Convention anticipated that westward migration would substantially alter the distribution of the country's population. They wished to avoid replicating the English practice of "rotten boroughs" that resulted from the legislature's refusal to reapportion itself in light of population shifts. See *Wesberry*, 376 U.S. at 14. The relevant provisions operate together to further "our Constitution's

[13] A landlord, for example, might inform the Census Bureau that four persons resided in a particular unit on the census date, based on the lease-signer's prior representation that four persons would be living in the unit, even if the landlord had dealt exclusively with a single individual. A postal worker might inform the Bureau that a unit housed four residents, based on his recollection that mail addressed to four different individuals was regularly delivered to that location on or around the census date.

plain objective of making equal representation for equal numbers of people the fundamental goal for the House of Representatives." *Wesberry*, 376 U.S. at 18; see *Montana*, 503 U.S. at 463 (referring to "[t]he polestar of equal representation"); *Franklin*, 505 U.S. at 804, 806 ("constitutional goal of equal representation").

The decennial census can fulfill that purpose, however, only to the extent that it *accurately* determines the relative population shares of the individual States. To construe the phrase "actual Enumeration" to preclude techniques that enhance the accuracy of the actual count would place the Census Clause at cross-purposes with the related constitutional provisions that the Clause was intended to implement. Appellants do not contest the district court's conclusion (see J.S. App. 25a) that attributing zero residents to each housing unit in question, rather than imputing data from a comparable nearby unit, would reduce the accuracy of the apportionment counts. Appellants find that result unproblematic, contending that "the Census Clause * * * necessarily assumes that all persons who cannot be 'enumerated' will be excluded from the apportionment." Br. 50. The constitutional goal of "equal representation for equal numbers of people" is concededly incapable of complete achievement in practice because (*inter alia*) the population figures derived from the decennial census "are inherently less than absolutely accurate." *Gaffney* v. *Cummings*, 412 U.S. 735, 745 (1973); cf. *City of New York*, 517 U.S. at 6 ("Although each [decennial census] was designed with the goal of accomplishing an 'actual Enumeration' of the population, no census is recognized as having been wholly successful in achieving that goal."). Appellants' construction of the Census Clause, however, would artificially exacerbate the inherent imperfections of the census by preventing the Bureau from attributing any occupants to a dwelling observed as part of the census.

Appellants argue (Br. 41-43) that imputation is inconsistent with what they assert was the intent of the Framers to mandate a particular method of ascertaining the population in order to prevent political manipulation of the census. As explained above (see p. 23, *supra*), imputation as implemented by the Census Bureau in 2000 and prior decades in fact guards against political manipulation in the design and implementation of followup techniques. In any event, appellants' effort to read a barrier to imputation into the Census Clause on that basis has no support in the historical record. When they believed it necessary to do so, the Framers specifically addressed particular issues concerning the goal of equal representation in the Constitution itself. Thus, the Framers considered and rejected a proposal that the apportionment of Representatives be based in part upon wealth. See pp. 36-37, *supra*. The requirement that Representatives be apportioned among the States "according to their respective Numbers," U.S. Const. Art. I, § 2, Cl. 3, precludes Congress from adopting a rule of apportionment based on any factor other than population. The Framers also repeatedly expressed concern that Members of Congress might seek to perpetuate themselves in power by declining to reapportion the House of Representatives in light of population shifts. See p. 46, *supra*. The Framers explicitly addressed that danger by requiring that a new enumeration be conducted at least once every ten years. U.S. Const. Art. I, § 2, Cl. 3. Neither the text nor the history of the Census Clause, however, reveals a comparable intention to circumscribe Congress's selection of *methods* of taking the census. To the contrary, the Constitution gives Congress broad authority to conduct the decennial census "in such Manner as they shall by Law direct." *Ibid.*; see *City of New York*, 517 U.S. at 19 (recognizing that "[t]he text of the Constitution vests Congress with virtually unlimited discretion in conducting the decennial 'actual Enumeration,'" and that "there

is no basis for thinking that Congress' discretion is more limited than the text of the Constitution provides").[14]

This Court's decision in *Franklin* confirms the breadth of that authority. In identifying the State to which each individual should be allocated as of the decennial census date (now April 1), the Bureau has always relied on the individual's "usual residence" as of that date, even where the person is physically located in a different State on April 1. See *Franklin*, 505 U.S. at 804 ("The term ['usual residence'] can mean more than mere physical presence, and has been used broadly enough to include some element of allegiance or enduring tie to a place."); *id.* at 803-806. In implementing the "usual residence" concept, the Bureau has relied in part on general rules, rather than on particularized inquiries into each person's circumstances or subjective loyalties or preferences; and in some instances those general rules have changed over time. See *id.* at 805-806. As a result, even when specific individuals have been located and identified, the process by which they are allocated to particular States may involve an element of generalization regarding particular classes of persons (*e.g.*, college students), based on

[14] Appellants' assertion (Br. 47) that "the Framers understood an actual enumeration as a specific method of determining the population" also ignores the fact that the Bureau and its predecessors have used a *variety* of methods (*e.g.*, visits by federal enumerators to individual residences, mailed questionnaires, information from proxy respondents) to determine the number of persons within particular dwelling units. In 1964, for example, Congress repealed the prior requirement that enumerators visit every residence within their districts, see p. 3, *supra*, thereby allowing the Bureau to rely on mailed questionnaires as the primary form of evidence regarding the extent and distribution of the population. See J.A. 268 (Hogan Decl.) ("In 1970 and each subsequent census, the largest share of the population has been enumerated through the mail-out/mail-back procedure."). It is strange to suppose that the Framers entrusted to Congress a choice of that fundamental character, yet were sufficiently fearful of political manipulation that they foreclosed the use of imputation as a last-resort measure to fill in gaps for particular housing units that accounted for only 0.4% of the Nation's residents.

judgment or "estimation," as well as an exercise of discretion by the federal officials charged with conducting the census. Indeed, in *Franklin* itself, the Court concluded that the Secretary's decision to assign overseas military personnel to particular States according to a uniform rule, which resulted in the addition of 922,819 individuals to the state population totals and affected the apportionment of Representatives, reflected a judgment that was "consonant with, though not dictated by, the text and history of the Constitution." 505 U.S. at 806. There is no sound basis for concluding that Congress may not also authorize the Secretary to use imputation techniques as a last resort at the data-processing stage of the census to address problems of missing, incomplete, or contradictory data on a household-by-household basis.

CONCLUSION

The judgment of the district court should be affirmed.

Respectfully submitted.

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STATE OF UTAH, *et al.*,
Appellants,

v.

DONALD L. EVANS, *et al.*,
Appellees.

On Appeal from the United States District Court for the District of Utah

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QUESTIONS PRESENTED

1. Whether appellants' asserted injury – Utah's failure to be assigned an additional seat in the House of Representatives in the 2000 decennial reapportionment – is redressable, given that the President of the United States, the sole official responsible for determining the new apportionment figures, has no lawful authority to issue a revised apportionment determination because (a) the apportionment statute conferred authority to issue apportionment determinations only up to January 7, 2001, and (b) he is not a defendant to this action and thus cannot be authorized by judicial order to revise the apportionment determinations.

2. Whether the data editing procedure known as "hot deck imputation" employed in the 2000 census constitutes the "statistical method known as 'sampling'" prohibited by 13 U.S.C. § 195.

3. Whether the data editing procedure known as "hot deck imputation" employed in the 2000 census exceeds the power the Constitution confers exclusively on Congress to "direct" the "Manner in which" the "actual Enumeration" of the States' "respective Numbers" is "made" every ten years.

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JURISDICTION

For the reasons elaborated below, *infra* at 23-30, this Court lacks jurisdiction because appellants' asserted apportionment injury cannot be redressed by a judicial order.

STATEMENT OF THE CASE

Article I, section 2, clause 3 of the Constitution, as modified by section 2 of the Fourteenth Amendment, requires that seats in the House of Representatives be apportioned among the States "according to their respective numbers, counting the whole number of persons in each State." The "actual Enumeration" of the "whole number of persons in each State," the clause further provides, must be determined at least every ten years, and "in such manner as [Congress] shall by Law direct." That constitutional provision "vests Congress with virtually unlimited discretion in conducting the decennial 'actual Enumeration.'" *Wisconsin v. New York*, 517 U.S. 1, 19 (1996). In the Census Act, Congress conferred that discretion on the Secretary of Commerce, authorizing him to conduct the census "in such form and content as he may determine." 13 U.S.C. § 141(a); *see Wisconsin*, 517 U.S. at 19 ("Congress has delegated its broad authority over the Census to the Secretary").

Pursuant to that mandate, the Secretary has long employed a variety of statistical methods to deal with the inevitable errors discovered in the millions upon millions of individual record forms delivered to the Bureau's central database after all direct contact efforts have been completed. Among the editing and correction methods employed by the Secretary in the 2000 census was a process for enumerating housing units whose individual records ended up at the central Bureau database, for a variety of reasons, with a specified address recorded, but with inconsistent or missing data for population count, occupancy, or status. Under that method, when the Bureau came across a housing unit record form with missing or conflicting data, it would enumerate

that unit by "imputing" to the record the enumeration of a unit in the same census tract that had been personally assessed by a Bureau enumerator during census follow-up efforts. *See infra* at 15-19. That process is a version of the statistical method known as "hot-deck imputation,"[1] a data editing method the Bureau has employed for decades.

A. Historical Background On The Data Editing Procedure Known As Hot-Deck Imputation

We set forth in some detail both the historical and technical context for the use of imputation methods in the enumeration of the population, because appellants' attacks on imputation rest on several important misconceptions about the imputation process.[2]

1. The first four censuses were conducted by U.S. marshals and their assistants, who tallied the individual returns and reported their district results without further review in Washington, D.C. *Encyclopedia of the U.S. Census* ("*Encyclopedia*") 196 (Margo J. Anderson ed., 2000) (AR C00430). Starting with the 1820 census, clerks in Washington reviewed the field results for errors, and in 1850 the responsibility for tallying returns was centralized in Washington. *Id.* Beginning in 1890, electromechanical punch cards were used to automate the tallying of responses in various categories, and "armies" of clerks were employed to record returns on

[1] The phrase "hot deck" refers to imputation in which data is imputed from another record in the *same* population being enumerated; "cold deck" refers to imputation in which data is imputed from a record in some other population, e.g., a previously-observed census. The "deck" terminology is derived from the time when census records were maintained in the form of mechanical punch cards. *Encyclopedia of the U.S. Census* 196 (Margo J. Anderson ed., 2000) (AR C00430).

[2] In this discussion the North Carolina appellants will cite only primary source record documents and sworn declarations. Appellants' citations to the record are, with few exceptions, citations to their own "Statement of Undisputed Facts," many of which are not just disputed, but demonstrably incorrect. JA 216-46, 334-48, 431-32.

punch-cards. *Id.* As the volume of returns increased exponentially over time, clerks were required to perform more and more "editing" of the returns to correct errors of various kinds. *Id.* Elaborate rules were developed to ensure regularity in the editing process. *Id.* Initially, however, these rules did not include any method for identifying a value for data that appeared not just incorrect, but was missing altogether. *Id.* at 197 (AR C00431).

In the 1940 census, the editing process for the first time incorporated a system for imputing age to persons for whom no age was reported. *Id.* The 1950 census employed a system for imputing employment status on the basis of different combinations of answers to certain questions. *Id.*

2. The 1960 census was the first to employ high-speed computing, expanding the opportunities for sophisticated editing of individual record forms. *Id.* Those opportunities included the first general use of imputation to fill in missing entries from those forms, including population data. *Id.*; Hogan Decl. ¶ 41 (JA 267). The Bureau's published report on the 1960 census explained the reasons for imputation:

> Editing the census returns involved identifying nonresponses and inconsistencies from whatever source by means of various checks and correcting the inconsistencies. The allocation process supplied missing entries.
>
> Inconsistencies and nonresponses in the basic data could result from several of the major census processes. For example, during the enumeration, some respondents furnished inconsistent answers and the enumerators failed to notice the inconsistencies. The enumerators sometimes failed to ask a question or failed to record the response or else recorded it on the wrong place in the schedule. Coders sometimes missed a response which was written on a schedule and sometimes entered an inconsistent code for one.

> Sometimes a mark on a schedule was so light that FOSDIC [the computer recording device] did not read it and sometimes an erasure was so poor that FOSDIC read a mark that should have been erased. . . . The quantity of data collected in a census, the number of respondents, the number of enumerators and other census workers, and the number of different operations required are so large that it is considered inevitable that some errors will occur. Editing to correct obvious errors is a regular part of the census process.
>
> * * *
>
> Most of the editing and allocation was accomplished by the use of high-speed electronic computers, which performed edits and allocations of a highly complex nature with greater consistency than could have been achieved by clerical processing and with savings in both time and money.

1960 Censuses of Population and Housing: Procedural History ("*Procedural History*") 81-82 (AR C00377-78). To resolve problems with missing count data, "data for persons in the last preceding housing unit were duplicated to replace the occupants for whom there was no data." *Id.* at 83 (AR C00379). Neither Congress, nor any State, objected to the Bureau's use of imputation in the 1960 census for apportionment purposes on the ground that it constituted "sampling" prohibited by the recently enacted 13 U.S.C. § 195.

3. The 1970 census was the first to use the "mail-out/mail-back" procedure of self-enumeration. Hogan Decl. ¶ 42 (JA 268). The majority of the population in that census (and in every subsequent census) has been enumerated through this process, rather than through direct contact with an enumerator. *Id.* The new mailing procedure also introduced yet another source of potential error into the processing of forms – mistakes by respondents, who were not professional enumerators. The Bureau reported that "[t]he computer editing procedures for 1970 were essentially the same as 1960, except that for 1970 far more extensive use was made of 'hot decks.'" *1970 Procedural History* 15-65 (AR C00395). The 1970 computer editing procedures imputed population counts to individual housing units where (1) a questionnaire listed a unit as occupied, but did not list the number of occupants, and (2) where the questionnaire was not properly microfilmed or recorded by FOSDIC. *Id.* at 15-66 (AR C00396).

In addition to, and distinct from, the computer editing imputation process, the Bureau also used imputation in conjunction with two forms of sampling in the 1970 census. *See* Sampling and Statistical Methods In Past Censuses, Jan. 13, 1997, at 2-3 (Memo #F-1) (AR C001460-61) (distinguishing between imputation and sampling procedures in 1970 census); Hogan Decl. ¶ 44 (JA 269) (same); *see generally 1970 Census of Population and Housing: Effect of Special Procedures To Improve Coverage In The 1970 Census* (Dec. 1994) ("*Effect of Special Procedures*") (AR C00398-411). The first method of sampling, the "National Vacancy Check," was implemented because the Bureau discovered that enumerators were often misclassifying occupied units as "vacant" when they received no response. *Effect of Special Procedures* 11 (AR C00404). To resolve that problem, the Bureau selected a "sample" of housing units initially classified by enumerators as vacant, and revisited each to determine conclusively whether it was vacant and, if not, the number of occupants. *Id.*; Memo #F-1, at 2 (AR C001461). From the sample results the Bureau calculated the portion of units in each "enumeration district" ("ED") designated as "vacant" to be redesignated as "occupied," and then used hot-deck imputation to determine the occupancy number to apply to each redesignated unit. *Id.* at 11-13 (AR C00404).

The second method of sampling used in the 1970 census was the Post-enumeration Postal Check ("PEPOC"). This

adjustment focused on southern states, because post-1960 analyses had shown that housing unit coverage in the South was "considerably worse" than in the rest of the country. *Id.* at 15 (AR C00408); Memo #F-1, at 3 (AR C001462). In this process the Bureau cross-checked its results with postal address lists and identified a large number of addresses that had not been enumerated. The Bureau then selected a sample of those missed addresses for direct contact. *1970 Procedural History* 8-28 (AR C00391). From this sample the Bureau calculated the proportion of occupied housing units missed in each ED by the initial contact procedures, and added the proportionate number of housing units dictated by the sample. The Bureau then used hot-deck imputation to enumerate each added unit. *Id.* at 8-29 (AR C00392); *Effect of Special Procedures* 15 (AR C00408).

The example of the 1970 census demonstrates that imputation *may* be used in conjunction with sampling methods, Hogan Decl ¶ 44 (JA 269) – as occurred with the National Vacancy Check and PEPOC – but that imputation may also be done without the use of sampling methods – as occurred in the regular computer data editing process.

4. The 1980 census did not employ any sampling methods (because of concerns about their legality), but did use statistical methods of imputation. Hogan Decl. ¶ 46 (JA 270); Imputation in the 1980 Census, Nov. 4, 1982 (JA 98); 1980 Census Imputation of Population Characteristics, Feb. 5, 1988 (JA 211); Bailar *Orr* Aff. ¶¶ 3, 8-9 (JA 88, 90-91); *see also 1980 Procedural History* 6-28, 6-30 (AR C00415, 418). As in previous censuses, the Bureau concluded that imputation was necessary to address "incomplete data" resulting from "partial enumeration, respondent refusal or other nonresponse, clerical handling (e.g., coding) of questionnaires and electronic processing of the questionnaires." Imputation in the 1980 Census, *supra* (JA 99); *see 1980 Procedural History* 6-28 (AR C00415) (imputation necessary

when "no interview was possible or there had been a mechanical failure in the system"). To address missing population data, Bureau statisticians explained, they could either assume a "zero" in the unit, or use a statistical methodology to assign some other, more likely value to the unit: in this sense, imputation "takes place either implicitly or explicitly." Imputation in the 1980 Census, *supra* (JA 99).

The State of Indiana sued the Census Bureau after the 1980 Census, because the use of hot-deck imputation had shifted a House seat from Indiana to Florida. *Orr v. Baldridge*, No. IP-81-604-C, slip op. (D. Ind. July 1, 1985) (JA 110-19). Indiana's complaint asserted that the use of imputation was improper because (1) it constituted "sampling" prohibited by 13 U.S.C. § 195, and (2) its use was arbitrary and capricious for reasons independent of § 195. JA 112. Consistent with its longstanding position, the Bureau argued that "the sampling procedures prohibited by the Census Act and the imputations performed in 1980 are two completely different procedures, based upon totally distinct principles and serving equally distinct purposes." Bailar *Orr* Aff. ¶ 12 (JA 92). Indiana's own expert, Dr. Donald Rubin – the same expert employed by appellants in the instant case – submitted an affidavit agreeing that hot-deck imputation is not "sampling." Rubin *Orr* Aff. ¶¶ 4-5, 7 (JA 297-98) (agreeing that "sampling" as used in § 195 refers to "probability sampling," and that "the hot-deck imputation technique used in the 1980 Decennial Census . . . is not a method of probability sampling"). The Court agreed:

> Sampling is used where a scientifically selected set of units can be used to represent the entire population from which they are drawn. Inferences about the entire population can be based on sample results. Imputation, on the other hand, is a procedure for determining a plausible value for missing data. Imputation is used in both sample surveys and census with the goal

> of achieving as complete as possible an enumeration of the sampled or population units.

JA 114. The Court also rejected Indiana's claim that the use of imputation is arbitrary and capricious. To ignore units whose occupancy status remained undetermined after contact efforts ceased, the Court explained, would be "the equivalent of imputing zero or no persons," JA 112, which would create "known error" because the Bureau knew from extensive research that a significant number of those units were in fact occupied. JA 118; *see* Bailar *Orr* Aff. ¶¶ 17-23 (JA 94-97) (citing studies).

5. The 1990 census again did not take any "sampling" of the population, but employed the now-standard process of imputation in the final editing and tabulation of individual records. *See* Summary of the 1990 Census Imputation Procedures, Oct. 3, 1994 (Memo #BB-11) (JA 144-49); Hogan Decl. ¶¶ 52-57 (JA 273-75). The amount of imputation necessary in the 1990 census was dramatically reduced compared to 1970 and 1980, as well as 2000, evidently for two reasons. First, the Bureau was able to institute better questionnaire control and more clerical editing procedures, including follow-up telephone calls, to correct errors in records identified before final tabulation. Hogan Decl. ¶ 53 & n.10. Second, Bureau researchers believe that strong incentives given to enumerators not to turn in questionnaires lacking count information caused a certain amount of "field imputation" – i.e., enumerators making a nonstatistical "best guess" when follow-up was unsuccessful. Imputation in the 1990 Census – Coverage Implications, Aug. 31, 1992 (Memo #BB-7) (JA 128).

The 1990 census was the first to employ what is referred to as "status imputation." Memo #BB-11 (JA 143-44); Hogan Decl. ¶¶ 54-56 (JA 274-75).[3] Past censuses had employed "household size imputation" (where the unit was known to be occupied, but the number was unrecorded or unclear) and "occupancy imputation" (where the data record did not clearly identify whether the unit was occupied or vacant, imputation was used to assign status of vacant or occupied). Because of new address centralization procedures, the Bureau in 1990 for the first time faced the occasional need to edit records that reflected addresses for which the Bureau ended up with no data record at all. Hogan Decl. ¶ 55 (JA 274).

Prior to the 1990 census, the Bureau maintained no central address list; address registers for each ED were maintained in local census offices. *Id.* In 1990 the Bureau began to work with its own computerized and centralized list of addresses with valid housing units called the Address Control File ("ACF"). *Id.* At the same time, however, local offices continued to maintain their own list of units, called the Census Control File ("CCF"). *Id.* ¶ 53 n.10 (JA 273). The virtue of the system was that matching the lists helped detect address problems sooner than was possible in earlier censuses, *id.* ¶ 54 (JA 273), but the dual lists also created a new problem: matching millions of addresses obviously could not be done with perfection, and at the end of the process, during final editing and tabulation, the Bureau would at times come across an address on its ACF list that was not included on the local CCF, and thus for which the local office had reported no information. *Id.* Given that there was sufficient information regarding the existence of a valid unit at the address to have included it initially on the ACF, the Bureau did not automatically assume in every instance that the unit did not exist and should be deleted from the ACF.

---

[3] Appellants now concede that the 1990 census included status imputation, Utah Br. 8, correcting their expert's mistake, Wolfson Decl. ¶ 17 n.4 (JA 45).

Instead, the Bureau used hot-deck imputation to determine whether the unit should be deleted from the list and, if not, whether to assign a status of "vacant" or "occupied." Memo #BB-11 (JA 143-44).

B. Imputation In The 2000 Census

As a result of this Court's decision in *Department of Commerce v. House of Representatives*, 525 U.S. 316 (1999), plans for the 2000 census proceeded in two distinct phases. The first plan included sampling and imputation; the second plan excluded sampling, but continued the decades-old use of other statistical methods, including hot-deck imputation.

1. *Imputation In The Initial 2000 Census Plan.* As elaborated in *House of Representatives*, the Bureau initially planned to use two types of sampling in the 2000 census. One type was to be employed in the Nonresponse Follow-Up ("NRFU"), which takes place after the return of initial census mailings. *Id.* at 324. The Bureau expected about a 67 percent mailing-response rate, leaving about 33% of units initially nonresponding. *Id.* Unlike in the 1980 and 1990 censuses, however, the Bureau did not intend even to try to contact directly every nonresponding housing unit with its follow-up procedures. *Id.* Instead the Bureau planned to "sample" a "statistically representative" portion of the nonresponding units in each census tract, leaving in most cases 10% of the population uncontacted.

While definitively planning to take only a representative sample of the initially nonresponding units, one question the Bureau had not yet resolved was how it would derive values for the remaining 10% of the units. One proposal being considered was to use hot-deck imputation to assign values to the remaining 10%: a different donor would be selected from among *the sampled* nonrespondents for each of the remaining nonresponding units. A Comparison of Alternative Estimation Methodologies for Census 2000 (AR C01644,

C01646); Theory and Application of Nearest Neighbor Imputation in Census 2000 (AR C01651). Under this proposal, a much greater portion of the population would have been enumerated through imputation than in other censuses – 10% versus less than .5% – but only because the *sampling* aspect of the plan ensured that the donor units would be properly representative of the uncontacted population. *Id.*; *see* Rubin Decl. ¶¶ 16-17 (JA 60) (sampling ensures "that we can draw conclusions about the unobserved units in the population from the observed units in a scientifically reliable manner").

Like the 1970 census, the initial plan for the 2000 census demonstrates how imputation can be used in conjunction with a *representative sampling* of the population to derive values for missing population data. But because imputation used on such large scales without a representative sampling would not likely reflect the actual population reliably, the Bureau responded to the invalidation of the sampling aspects the plan by returning to its traditional practice of using imputation only for the tiny segment of the housing unit records that, at the end of massive efforts to contact every housing units, have missing or unclear data. Hogan Decl. ¶¶ 14, 58 (JA 255, 275-76).

2. *Imputation In The Final 2000 Census Plan.* The Bureau's initial plan for the 2000 census, which would have significantly limited the amount of post-mailing follow-up efforts, was invalidated on January 25, 1999. From that point forward the Bureau had just over a single year to devise a plan, and assign human and technical resources, for the massive new task of reaching the approximately 15,000,000 housing units it had expected to leave uncontacted as a result of the sampling procedure. *See* Theory and Application, *supra* (AR C01647) ("Revised plans for the census now reflect the increased workload and time requirements to follow-up roughly 15,000,000 more nonresponding housing units."); Hogan Decl ¶ 62 (JA 279).

(a) The Bureau's revised plan began, as it had initially, with the "Master Address File" ("MAF") – the successor to the ACF used in 1990. To understand the role of imputation in the census, it is important first to understand the significance of the MAF to census operations.

As the Bureau's centralized and computerized inventory of all living quarters in the United States, the MAF "serves as the basic control for the census." Census 2000 Operational Plan § VI (Dec. 2000) (AR C00245). The Bureau first created the MAF by merging the 1990 ACF with the Postal Service's comprehensive list of mailing addresses, called the Delivery Sequence File ("DSF").[4] Throughout the 1990s the Bureau repeatedly merged the MAF with the regularly-updated DSF. In addition, the Bureau tried to maximize the MAF's accuracy by conducting its own field operations and by enlisting the assistance of local and tribal governments in a wide variety of ways. The local assistance program included massive local government reviews to confirm the accuracy of listed housing units – over 8400 local and tribal governments reviewed the list in 1998 and 1999 (local government participation was especially important for "non-city-style" address, e.g., rural postal routes and general delivery addresses). All of these steps – and still others – sought to ensure that to the extent possible the MAF included all valid housing units, without including invalid units.[5]

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[4] The description in the text of the Bureau's address list updating process is based on the Census 2000 Operational Plan § VI (Dec. 2000) (AR C00245); and The Census Bureau's Master Address File (MAF) – Census 2000 Address List Basics (March 1999) (AR C01490).

[5] Appellants claim that the MAF "concededly contains a large number of addresses that do not represent housing units." Utah Br. 8 (citing AR C01585). Here is what the cited document actually says: "As a result of the [DMAF] building and updating process, addresses are included in the DMAF that do not uniquely identify a housing unit as of April 1, 2000." Specification of the Kill Universe on the Decennial Master Address File for Census 2000, Dec. 21, 2000 (Memo #D-13) (AR C01585). That is of course true – nobody contends that the DMAF was a perfectly accurate list of every single housing unit in the United States. The document does not state that the final DMAF had a large *proportion* of addresses that were not valid housing units. And the fact that the DMAF was not perfect is exactly why the Bureau employed extensive follow-up procedures after the mail-out. *See infra* at 14-15, 16 n.7.

(b) The MAF was converted to the Decennial Master Address File ("DMAF") in July 1999. The DMAF became the basis for all the 2000 enumeration functions. The Bureau continued to revise the DMAF up to the final tabulation of returns. Specification for Reinstating Addresses Flagged as Deletes on the Hundred-percent Census Unedited File, Nov. 7, 2000 (AR C01579); *see* Hogan Decl. ¶ 69 (JA 283).

The DMAF was the basis for mailing and follow-up programs in the 2000 census. Thus if an address did not make its way onto the DMAF before the census process, and was not added by a respondent or an enumerator somewhere in the process, no record for that address was processed in the final tabulation. Conversely, if an address *did* appear on the DMAF, then at the end of the process the Bureau would expect a record to be associated with the address. The record could identify the status as "nonexistent/delete" if, for example, the Bureau received a questionnaire for that address establishing that the address no longer contained a valid residential unit, or if an enumerator could not locate a unit during the follow-up coverage programs, or determined that the unit was no longer a housing residence, or had been demolished or was condemned. AR C00999; Hogan Decl. ¶ 69 (JA 283). If an address that had been identified on the DMAF after the exhaustive MAF update and revision process did not have *any* data record associated with it at the end of the process (i.e., it was not identified as occupied, vacant or nonexistent), the Bureau did not plan to assume automatically that the address was actually nonexistent and thus to be deleted, but instead planned to use hot-deck imputation to

assign a status to the address and, if assigned a status of occupied, to enumerate the unit. *See infra* at 16-17.

(c) The 2000 census in execution was a colossal endeavor, involving more than 147 million paper questionnaires and some 1.5 billion pages of printed material. At peak operation the Bureau was processing about 3.3 million different forms per day. Hogan Decl. ¶ 8 (JA 251).

The first stage of the census included not only the familiar mail-out/mail-back program, but also opportunities for respondents to pick up questionnaires at public locations and to respond by telephone and Internet. *See United States Census 2000* § IX (Dec. 2000) (AR C00266-80); Hogan Decl. ¶¶ 70-74 (JA 284-86). This stage also included two related contact methods for enumerating people in remote or inaccessible areas: the list/enumerate process, where enumerators created an address list as they canvassed an assigned area and conducted interviews; and enumerate/update, where enumerators started with an address list, which they updated as they canvassed and conducted interviews. *Id.*

The next stage involved two forms of follow-up. One form, the "Coverage Edit and Telephone Follow-up" ("CETFU"), focused on responses that *were* received by the Bureau in the first stage. CEFTU employed a computer program to check individual responses for discrepancies in count information. *Id.* If the computer identified a response with inconsistent count information, a telephone agent tried to resolve the problem by calling the household. *Id.*

The other form of follow-up constituted two different efforts to contact directly DMAF-listed units that did *not* return forms at stage one. The first of these was the Non-response Follow-Up ("NRFU"), during which enumerators made up to six attempts to contact (either personally, by phone, or by proxy, e.g., neighbor or building manager) and enumerate every single nonresponding address. *Id.* NRFU was conducted from April to July 2000. The second direct contact

follow-up effort, conducted in July and August 2000, was the Coverage Improvement Follow-up ("CIFU"). *Id.* This was a process for interviewer-rechecks of certain DMAF addresses that came through the first stage and NRFU classified as "nonexistent." *Id.* In this process, census staff attempted to visit addresses added to the DMAF during the process by enumerators, the Postal Service, and others, but for which no response had been received; addresses for mail returns that were marked as received but for which no data was captured (i.e., lost or blank forms); and addresses for which responses reported the unit as nonexistent, but which the Postal Service did not confirm as undeliverable addresses. *Id.*

After all this data collection activity was completed, the DMAF list was, in essence, merged with all the records returned, creating the "preliminary Hundred Percent Unedited File" ("HCUF"). Despite the intensive DMAF correction and response follow-up efforts, as of August 14, 2001, 0.4 percent of the addresses from the DMAF were "unclassified" on the HCUF – i.e., no data records were associated with them – and others were classified as "occupied" but had missing or conflicting population count information. Census 2000 Specifications for Imputing Housing Unit Status and Population Counts, Sept. 26, 2000 (Memo #Q-34) (JA 152); Census 2000 – Missing Housing Unit Status and Population Data, February 28, 2001 (Memo #B-17) (JA 188).

(d) At the very end of the census operations, when the individual records were being processed for final tabulation, the Bureau used a version of the "hot-deck imputation" process employed in the previous four censuses to edit those unclassified, incomplete or inconsistent records.[6] The Bureau used imputation to enumerate in three circumstances.

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[6] The particular "hot-deck" methodology employed in the 2000 census is set forth in Memos #B-17 (JA 184) and #Q-34 (JA 152). It included several refinements that improved its accuracy over previously used hot-deck methods. Hogan Decl. ¶¶ 38, 59 (JA 266, 276-77).

Household size imputation was employed when the address record indicated that the unit was occupied, but contained incomplete or inconsistent information as to population count. *Occupancy* imputation was used when the record made clear the address contained a residential unit, but did not sufficiently indicate whether it was occupied or vacant. The Bureau would first impute to the unit a status of vacant or occupied, and, if it assigned the latter, used imputation to enumerate household size. *Status* imputation was used for those addresses on the HCUF that were still unclassified at the end of the process. Initial Research on Count Imputation in Census 2000 (Memo #110) (JA 444).[7]

Though it is studiously avoided in appellants' factual recitation, subsequent Bureau research has produced significant additional information about many of the records for which imputation was necessary. With respect to status imputation, Bureau "Memo #110" reports that a full *75%* of the addresses for which a status was imputed were actually "valid housing units," i.e., units "not on the DMAF by the time questionnaires were mailed out or delivered, but . . . added either by enumerators during field operations or by respondents themselves." JA 445-47.[8] Memo #110 explains

[7] Missing count information was not handled solely by imputation, so long as the missing data was discovered early enough in the process. When it discovered part way through the NRFU that a large number of questionnaires were being returned with no population count, the Bureau specifically implemented a process for identifying those records and conducting field follow-up. Memo #110 (JA 448 n.2). Obviously, however, not all incomplete records could be caught in time, and not all follow-up efforts would be successful.

[8] For this reason appellants are flatly incorrect when they describe the "unclassified" addresses on the HCUF as "phantom" units, Utah Br. 8, on the asserted ground "the Bureau has no information as to whether the address in question represents an existing housing unit," *id.* at 33. Appellants ignore not only the evidence in Memo #110 *now* establishing to a certainty that the vast majority of units actually exist, but also the extensive evidence the Bureau had about the units *at the time*. The unclassified addresses on the HCUF were there only because they were initially on the DMAF (which was exhaustively reviewed and revised for accuracy), or were specifically added to the DMAF by an enumerator or respondent, all of which gave the Bureau substantial information about the likely existence of the units. Hogan Decl. ¶ 15 (JA 256). If anything, the proper presumption is that the units do exist – a presumption confirmed by Memo #110.

that the status of these units were incorrectly identified as "unknown" on the HCUF because (1) a data corruption error, and (2) the late receipt of records from the CIFU process, led to the computer program's failure to associate these valid units with their appropriate data records. JA 446-47; *see* J.S. 25a ("the study reveals that these units were clearly valid residences that were simply not captured because of errors at the data-capturing stage").[9]

With respect to occupancy imputation, Memo #110 explains that over 90% of the records requiring occupancy imputation were returns with inconsistent information (i.e., the summary states "vacant" but person information is provided). JA 447. Likewise, over 95% of the household-size imputation cases reflected returns that "clearly indicated the unit was occupied," but had "[i]nconsistent or missing data" with respect to the population count. *Id.* at 448. Summarizing its analysis of all imputations in the 2000 census, Memo #110 reports:

> The team's research confirms that most of the count imputations performed in Census 2000 are attributable to housing units that have been determined to exist, but whose data were not included in the totals through a variety of reasons. These cases have been appropriately included in the census. If they had not

[9] Almost all of the remaining "unclassified" units – 22% of the total of unclassified units – reflected addresses from the DMAF with blank data records associated (JA 447), again suggesting that processing errors simply lost information on what were also likely valid units (since the addresses were derived from the carefully updated DMAF).

> been included in the count imputation process, these cases would represent individuals or housing units that should have been included in the census, but who were left out because of incomplete or inconsistent data or the inability to locate appropriate data records due to data processing issues.

Memo #110 (JA 449-50).

The Bureau employed imputation in the 2000 census consistent with its long-held view that the only alternatives for handling missing or inconsistent data are to assign the most plausible value, or to assign a value of zero. Hogan Decl. ¶ 10 (JA 252); *see supra* at 7-9. In either case, the Bureau's statistical experts have long contended, the imputation of a value occurs. *Id.*; Imputation in the 1980 Census, *supra* (AR C00616). The empirical question is which form of imputation is more accurate. Appellants believe that imputing zero is the more statistically accurate approach, Utah Br. 28-29 (units lacking information after coverage efforts "most reasonably can be assumed to be unoccupied or nonexistent"), but they are wrong. Appellants' view is premised on the incorrect understanding that imputation occurs only when the Bureau was not able to enumerate a unit as occupied "even after as many as six follow-up visits." *Id.* at 28. In fact, as the administrative record makes clear, imputation is often necessary because clerical and data errors lead to loss or confusion in records that were otherwise properly enumerated. *See supra* at 3-4, 6, 9, 16-18. Thus Bureau research has conclusively established that "a significant proportion of returns with questionable or incomplete data or unresolved status are actually valid, occupied housing units." Hogan Decl. ¶ 10 (JA 252) (citing studies). It necessarily follows, as those studies and dozens of others have shown, that when a record is incomplete, inconsistent or unclassified, and no other follow-up efforts are feasible, imputing data from another unit in close geographic proximity leads to

a much more accurate count of the local population than does ignoring the record altogether. Bailar *Orr* Aff. ¶ 18-23 (JA 94-97) (citing studies); Hogan Decl. ¶¶ 10, 31, 51 (JA 252, 263, 271-72) (citing studies).[10]

(e) In addition to time-tested imputation procedures, the Bureau used several other traditional statistical methods in the 2000 census to resolve problems identified in returns. Hogan Decl. ¶ 64 (JA 280). For example, the Bureau frequently came across multiple responses for what appeared to be the same residence with conflicting population data. The Bureau could not know with certainty which form was accurate, but it relied on a sophisticated algorithm for selecting which response to include in the enumeration. *Id.*

(f) The editing of the HCUF records – including the process of imputation for the inevitable (but relatively few) incomplete, inconsistent, or unclassified records remaining at the end of all census operations – resulted in the Hundred Percent Edited File, which provided the basis for the final apportionment numbers delivered to the President by the Secretary of Commerce.

C. Proceedings Below

1. Though Congress has conveyed to the Secretary much of its discretion over the manner for determining the enumeration of the population, Congress did not leave the task wholly unconstrained. In addition to the proscription on

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[10] Appellants' description of the accuracy-improvement record of imputation errs in yet another fundamental respect. Appellants assert that while unclassified units are almost certainly *un*occupied (which is incorrect for the reasons stated in text), the "donor" units used for imputation "are unquestionably *occupied*," and thus are not "representative of the estimated units." Utah Br. 28-29 (emphasis added). Appellants again simply misunderstand the imputation process: the donor units are *not* "unquestionably *occupied*" – to the contrary, the "donor" records used in status imputation include records classified as "vacant" and as "nonexistent." Memo # Q-34 (JA 154-55).

sampling, Congress devised a specific structure for the timing of various census and apportionment events. The Census Act requires the Secretary to take a "census of the population" as of "the first day of April" in every decennial year. 13 U.S.C. § 141(a). The Secretary is required to complete the census and report to the President the "tabulation of total population by States" within nine months of the census date. *Id.* No later than one week after the beginning of the first session of the Congress following the census, the President is required to "transmit to the Congress a statement showing the whole number of persons in each State . . . and the number of Representatives to which each State would be entitled" under the statutorily prescribed method for calculating the apportionment. 2 U.S.C. § 2a(b). The law provides that "[e]ach State shall be entitled . . . to the number of Representatives shown" in the President's statement to the Congress, *id.* § 2a(b), and the Clerk of the House is required to send a Certificate of Entitlement to the Governor of each State reflecting that number within fifteen days after receipt of the President's statement, *id.* The Census Act contains no provisions authorizing the President to revise the apportionment for any reason after the date specified in the statute.[11]

2. Pursuant to that statutory reapportionment scheme, the Secretary of Commerce reported to the President the final census tabulations on December 28, 2000. Applying the statutorily-prescribed "method of equal proportions" to the census numbers, the President determined that North Carolina was entitled to one additional Representative for a total of thirteen, and Utah remained entitled to three. On January 4, 2001, the President transmitted his statement to Congress reporting the new apportionment, and on January 16, 2001, the Clerk of the House transmitted to North Carolina a Cer-

[11] By statute enacted in 1997, Congress created a specific mechanism for challenging "the use of sampling or any other statistical methodology" *prior* to the conduct of the census. *See infra* at 29-30.

tificate of Entitlement officially communicating North Carolina's lawful entitlement to 13 Representatives. JA 453.

3. Utah has made two legal efforts to reverse the 2000 apportionment and obtain by judicial order what traditional census practices did not provide: an additional seat in the House of Representatives. The first challenge argued that the Bureau unlawfully elected to count federal employees living overseas – primarily military personnel and their dependents – while excluding other Americans living abroad. That challenge was rejected, and this Court affirmed. 122 S. Ct. 612 (2001). On April 13, 2001, appellants filed this separate action. Another three-judge district court rejected that challenge as well. J.S. 1a. On January 22, 2002, this Court accepted Utah's appeal, postponing further consideration of jurisdiction until the hearing of the case on the merits.

SUMMARY OF ARGUMENT

I. There is a threshold jurisdictional problem with this case. Appellants' asserted injury is that the President assigned Utah one less Representative than it was entitled to, because the Census Bureau used improper methods to identify the States' respective population totals. For appellants to obtain relief, the President would have to revise the apportionment and assign Utah a new seat. A plurality of this Court held in *Franklin v. Massachussetts*, 505 U.S. 788 (1992), that even if the President could not be directed by a court to do so, an apportionment injury is still redressable because it can be assumed that the President would act in accordance with a judicial declaration as to the proper census methodology. But there is a problem *Franklin* did not address: simply put, the President lacks any lawful authority to shift House seats among the States after the apportionment is finalized. The statute explicitly states that apportionment may be revised only by the next self-executing apportionment cycle, or by a supervening act of Congress. Thus even if the President wanted to give Utah another House seat in

accordance with an opinion of this Court on census practices, he has no lawful authority to do so. For this very reason Congress created the opportunity to challenge statistical operations in the census before census operations begin. Having declined to avail themselves of that opportunity to challenge imputation, appellants have left this Court with no way to ensure that their injury is redressed, and thus no jurisdiction over the case.

II. Crossing the threshold to the merits serves appellants no better. The Bureau's practice of enumerating an individual housing unit whose record has inconsistent, unclear or missing data by imputing to it the population count of a single nearby responding unit has been used in the decennial census for the last forty years, with the full knowledge of the Congress and the States. Hot-deck imputation is not the statutorily-barred "statistical method known as 'sampling,'" 13 U.S.C. § 195, which is the entirely different process of selecting a subset of a larger aggregate that is expected to be representative or a model of the whole. Hot-deck imputation involves no methodical selection of any representative subset of the population; rather, the characteristics of one unit are simply attributed to another. Because the two processes are used for different purposes, acknowledging the difference assuredly does not lead to an "end run" around *House of Representatives*. Nor does appellants' theory of "sampling" distinguish between size and status/occupancy imputation. Their attack on the latter forms reduces to the claim that they are bad policy because the Bureau has no evidence that units or persons actually exist, which is demonstrably incorrect: the units are in the Bureau's records because they were added to the DMAF as valid housing unit addresses, and subsequent Bureau research ignored by appellants has conclusively shown that the vast majority of records for which status was imputed actually are valid housing units.

III. The use of hot-deck imputation is well within Congress's wide discretion under the Constitution to devise the manner in which the actual enumeration of the whole number of persons in each State will be determined every decennial year. The procedures employed in the 2000 census are consistent with the phrase "actual Enumeration," in the context of its usage in the Constitution, which is best read to mean identification of the actual population number, and not a particular head-counting method of identifying that number. It is true that the actual population count cannot be determined with perfection, as appellants point out, but that is precisely why this Court recognized in *Wisconsin v. New York* that Congress need only adopt methods with a "reasonable relationship to the accomplishment of an actual enumeration of the population." 517 U.S. at 19. But the Court need not reach all of those issues to decide this case: appellants' only real argument that the phrase "actual Enumeration" excludes imputation is based on historical evidence suggesting that gross population estimates were not considered during the founding era to be consistent with an actual population enumeration. Even if true, imputation is not a gross estimate, but is a highly reliable, non-subjective process of enumerating individual housing units on a unit-by-unit basis, consistent with methods of enumeration common from the early days of the census to today.

ARGUMENT

I. APPELLANTS LACK ARTICLE III STANDING BECAUSE THEIR ASSERTED APPORTIONMENT INJURY IS NOT REDRESSABLE

A federal court has authority to adjudicate a case or controversy under Article III only if the plaintiff alleges and proves an injury that is "likely to be redressed by the requested relief." *Allen v. Wright*, 468 U.S. 737, 751 (1984); *see Lujan v. Defenders of Wildlife*, 504 U.S. 555, 561 (1992). "[R]elief that does not remedy the injury suffered cannot

bootstrap a plaintiff into federal court; that is the very essence of the redressability requirement." *Steel Co. v. Citizens for a Better Env't*, 523 U.S. 83, 93-95 (1998). In particular, when redressability "depends on the unfettered choices made by independent actors not before the courts and whose exercise of broad and legitimate discretion the courts cannot presume either to control or to predict," *Lujan*, 504 U.S. at 562, the requirements of Article III standing are "substantially more difficult to establish," *id.*

Appellants claim injury – the loss of a seat in Congress – resulting from the President's decision to rely on census figures that included a minuscule proportion of housing-unit records that had been enumerated by the use of hot-deck imputation. To remedy that asserted injury, appellants seek an order directing the Secretary to transmit to the President a revised census and apportionment report excluding persons enumerated by hot-deck imputation methods. JA 38-39. The problem is this: even if the President receives a new report from the Secretary, he simply has no lawful authority to revise the apportionment. *Cf. House of Representatives*, 525 U.S. at 332 ("[I]t is certainly not necessary for this Court to wait until the census has been conducted to consider the issues presented here, because such a pause would result in extreme – possibly irremediable – hardship."). Explicitly recognizing the inherent problem with judicial challenges to census operations once the apportionment is complete, Congress in 1997 enacted a statute specifically providing that lawsuits challenging the use of "any statistical methodology" in the census could be brought before census operations begin. *Infra* at 29-30. Neither appellants, nor anybody else, challenged the use of imputation at that time, when relief was available, and now their asserted injury is remediable only by an act of Congress.

A. The President Would Have No Authority To Revise The Apportionment On The Basis Of A New Census Report From The Secretary

The deadlines prescribed for executive action under the apportionment statute are strict and substantive, designed to provide certainty and finality to a federal process that has immediate impacts on the States – going directly to the terms of their participation in the national government. *See Franklin*, 505 U.S. at 791-92 (reapportionment process made "virtually self-executing" to avoid delays in apportionment). To achieve that much-needed finality, the statute specifies a particular date every ten years by which the President is required to make his apportionment determination and deliver it to Congress – for the 2000 census, January 7, 2001. Once that statement is transmitted, the statute removes from the President all discretion and authority over further apportionment in that cycle: each State "shall be entitled" to the number of Representatives specified "in each Congress thereafter *until the taking effect of a reapportionment under this section or a subsequent statute*." 2 U.S.C. § 2a(b) (emphasis added); *see Franklin*, 505 U.S. at 799 ("the President's personal transmittal of the report to Congress . . . settles the apportionment"). Under the plain terms of the statute, only two sources may rescind a State's "entitlement" to the apportionment determination made pursuant to the statute: (1) the *next* decennial reapportionment, or (2) a new act of Congress adopted in the intervening period. There is no provision authorizing the President to revise or rescind the apportionment determination for any reason before the next cycle, and none can be implied. *See National RR Passenger Corp. v. National Ass'n of RR Passengers*, 414 U.S. 453, 458 (1974) ("'When a statute limits a thing to be done in a particular mode, it includes the negative of any other mode.'" (quoting *Botany Mills v. United States*, 278 U.S. 282, 289 (1929)); *Continental Cas. Co. v. United States*, 314 U.S. 527, 533 (1942) ("Generally speaking, a 'legislative affirmative de-

scription' implies denial of the non-described powers" (quoting *Durousseau v. United States*, 6 Cranch 307, 314 (1810)).[12]

The only other possibility, in theory, might rest on the ground that a judicial order may suffice to authorize a federal officer to take an action beyond the authority conferred by a statute. Federal agencies and government officials may at times be compelled by court order to correct an error by revising some action even after the expiration of a statutory deadline for the action. There are at least two crucial distinctions here. First, in the typical action the agency or lower governmental official is a party to the action, and thus can be made subject to the judicial order of empowerment. *See Franklin*, 505 U.S. at 802. The President, by contrast, is not a defendant to this action subject to any judicial order granting him suprastatutory authority to revision the apportionment, nor is it clear he *could* be made a defendant, *id.* Second, the statute at issue here is far from a typical scheme for organizing administrative agency action. By its general nature the matter at issue calls for the highest level of respect for the States' interest in finality. *See Franklin*, 505 U.S. at 800 (observing that Congress's very inclusion of the President as the constitutional officer responsible for finalizing apportionment "makes for greater permanence, which is one of the major virtues to be desired in such a statute"). And by

[12] The Census Bureau also specifically allows for states and localities to bring post-census "challenges" to the results of the census for over two years, which may result in the "correction[]" of population numbers. Census 2000 Count Resolution Question Program, 66 Fed. Reg. 35588 (July 6, 2001). Those corrections, however, are *not* used to revise the count for apportionment purposes, *id.*, but are instead used only in post-census population calculations, *id.* But an error is an error, whether it is identified as the result of a lawsuit, an administrative challenge, or the Bureau's own self-review process. It is telling that the President, acting through the Bureau, has never assumed he has the authority to shift House seats if an error affecting apportionment is identified.

its specific terms the statute actualizes that interest, specifying that only an act of Congress can revise an apportionment prior to the next self-executing cycle.[13] Those terms prohibit the President himself from shifting House seats between States between reapportionment cycles; they just as surely suggest that courts ought not tread on the same politically volatile ground to accomplish the same result.

B. *Franklin* Does Not Provide An Adequate Basis For Standing In This Case

The district court concluded that appellants' injury is redressable on the ground that, as this Court held in *Franklin*, the courts could "assume that the President . . . would abide by an authoritative interpretation of the Constitution and the Census Act." JS App. 12a. But even on that assumption, appellants' injury cannot be redressed because the President simply lacks the authority to revise the apportionment once that apportionment is finalized.

None of the opinions in *Franklin* addressed this problem. That may be because standing was not directly addressed by any of the briefs in *Franklin*. *Cf. Hohn v. United States*, 524 U.S. 236, 251-52 (1998) (Court is "less constrained to follow precedent where, as here, the opinion was rendered without full briefing and argument"). In any event, even without questioning the *Franklin* plurality's basic assumption that the President could be expected to act in accordance with a judicial opinion on census practices, the issue here is whether the President could shift a House seat from one State to another even if he wanted to. That question was not addressed in *Franklin*, and the answer is clear: if the statute imposes a self-executing limitation on that authority, it is impossible to

[13] The provision also ensures that States, which participate much more directly in the functioning of Congress than they can in the operation of the unitary Executive, have some say in the unprecedented event of an "off-year" reapportionment.

assume the President will alter the apportionment and provide appellants relief.[14]

An example further illustrates the point. As a majority of the Court in *Franklin* agreed, the President is entitled to play an active role in the conduct of the decennial census process throughout the process – he may even instruct the Secretary to "reform the census . . . after the data are submitted to him." *Franklin*, 505 U.S. at 799. Thus, assuming the Secretary were, by order of a court, to submit new data to the President disregarding all returns with imputations, if the President has *any* lawful authority to revise the apportionment, he would actually have *at least* two options: he could order a new apportionment based on the new data, as appellants are seeking, or, alternatively, he could conclude that the data is too incomplete and that further efforts at data recovery or respondent contact should be made (especially in light of extensive subsequent research identifying the sources of record errors that led to imputation, *see supra* at 16-18). If the statutory deadlines are now legally meaningless, it is hardly clear why the President should opt for the former,

[14] The force of *Franklin* as a precedent on redressability in this context is unclear even on its own terms. A plurality of four Justices, in an opinion by Justice O'Connor, found redressability on the assumption that the President would abide by an "authoritative interpretation of the census statute and constitutional provisions," 505 U.S. at 803, though as noted the plurality did not consider whether the President had authority to act. Justice Scalia flatly disagreed that the assumption was sufficient to establish Article III redressability, and therefore concluded that he should not reach the merits. *Id.* at 825. Finally, four other Justices, in an opinion by Justice Stevens, did not join in the plurality's reasoning, but implicitly found standing on an entirely different basis: Justice Stevens' opinion viewed the action of the Secretary in delivering the census report to the President as a "final agency action" under the APA, *id.* at 808-16, and thus the plaintiffs implicitly had standing to sue and seek relief directly from the Secretary. Justice Stevens' analysis did not address whether the President might be separately barred by the statute from issuing a new apportionment determination.

clearly inaccurate count, when the latter option for a more accurate count would be available to him in the exercise of his discretion. Indeed, the Census Bureau itself could engage in such activities before sending a new report to the President.

The true answer, of course, is that because the statutory deadline has passed and the apportionment is finalized, the President and the Bureau lack the authority to rewrite the apportionment numbers for any reason. The only way to challenge statistical methods to be used in the census is before the census begins.

C. Parties Challenging The Use Of Statistical Methods In The Census Must Bring Pre-Census Challenges

In 1997, Congress enacted a statute that is explicitly designed to steer challenges just like this one into court *before the census starts*, precisely because Congress believed courts would not be properly situated to provide relief once the apportionment is complete. Pub. L. 105-119, Title II, § 209, 111 Stat. 2480, reprinted following 13 U.S.C. § 141 (West Supp. 2001). The text of that law states:

> [T]he decennial enumeration of the population is a complex and vast undertaking, and if such enumeration is conducted in a manner that does not comply with the requirements of the Constitution or laws of the United States, *it would be impracticable for the States to obtain, and the courts of the United States to provide, meaningful relief after such enumeration has been conducted.*

Id. § 209(a)(7). Congress therefore created a cause of action that permits only *prospective* relief against the use of statistical methods, authorizing any "aggrieved person" to bring an action to "obtain declaratory, injunctive, and any other appropriate relief against" the use of a challenged statistical

method. *Id.* § 209(b). Congress defined an "aggrieved person" to include "any resident of a State whose congressional representation or district could be changed as a result of the use of a statistical method challenged in the civil action." *Id.* § 209(d)(1).[15] Finally, Congress required the Secretary to produce a pre-census report on operations, and provided that the report "shall be deemed to constitute final agency action regarding the use of statistical methods in the 2000 decennial census, thus making the question of their use in such census sufficiently concrete and final to now be reviewable in a judicial proceeding." *Id.* § 209(c)(2). Congress even established a special framework to expedite judicial review of such claims. *Id.* § 209(e).

These new statutory procedures provided ample opportunity to challenge the use of any statistical methodology in the 2000 Census, ensuring that the courts could adjudicate such claims before the census was conducted, and avoiding the kinds of severe electoral dislocations that would accompany judicial relief in a post-census lawsuit of this kind. None of the appellants availed themselves of those options, nor did any other challengers. The apportionment is now final, and neither the President nor this Court can order a revision. Appellants' asserted apportionment injury is therefore not redressable, and their case must be dismissed.[16]

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[15] Persons challenging the use of imputation before the census would have had constitutional injury under the intrastate-redistricting vote-dilution theory accepted as the basis for standing to bring the pre-census challenge in *House of Representatives*, 523 U.S. at 332-34. Even though the distributive effects of imputation between states cannot be determined in advance, *see infra* note 19, imputation is more common for units in urban and rural areas, JA 129-30; AR C00383, C00424. Voters in other areas could allege that their votes are diluted in intrastate redistricting by the increase in urban and rural population counts resulting from imputation.

[16] The fact that the Court has considered apportionment cases such as *Wisconsin* since *Franklin* without addressing the redressability problem raised here is immaterial. *See, e.g., Lewis v. Casey*, 518 U.S. 343, 353 n.2 (1996) ("[W]e have repeatedly held that the existence of unaddressed jurisdictional defects has no precedential effect.").

II. HOT-DECK IMPUTATION IS NOT "THE STATISTICAL METHOD KNOWN AS 'SAMPLING'"

The procedure in issue here is the Bureau's longstanding practice of enumerating a housing unit whose response record, at the very end of the census process, is missing, incomplete, or inconsistent, by imputing to that unit the enumeration obtained from direct contact of a neighboring unit. The statutory question is whether that procedure constitutes "the statistical method known as 'sampling,'" within the meaning of 13 U.S.C. § 195. The answer to that question is no.[17]

A. Hot-Deck Imputation Is Not "Sampling"

1. Section 195's prohibition against "the statistical method known as 'sampling'" refers to a term of art in the science of statistics. Terms of art must be given their term of art meaning. *See, e.g., Corning Glass Works v. Brennan*, 417 U.S. 188, 201 (1974) ("Where Congress has used technical words or terms of art, it is proper to explain them by reference to the art or science to which they are appropriate." (internal quotation marks and alterations omitted)). The imputation procedures employed in the 2000 Census are not "sampling" as that technical term was understood at the time of § 195's enactment in 1957 and as that term continues to be understood today.

(a) The leading statistical texts of the time uniformly defined "sampling" as "the selection of part of an aggregate of

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[17] Even if the Court concludes that appellants have Article III standing, at a minimum their statutory claim should be barred. The structure of the Census Act as amended in 1997 implicitly limits challenges under the Act to the period prior to the beginning of the census. *Supra* at 23-30.

material to represent the whole aggregate." Frank Yates, *Sampling Methods for Censuses and Surveys* 1 (2d ed. 1953); *see* Pandurang V. Sukhatme, *Sampling Theory of Surveys With Applications* 9 (1954) ("A sampling method is a method of selecting a fraction of the population in a way that the selected sample represents the population."); Walter A. Hendricks, *The Mathematical Theory of Sampling* 12 (1956) ("A sample is a selected portion of some universe drawn to provide information about the universe as a whole."). The statistics profession has continued to treat the method called "sampling" the same way. *See* Waksberg Dec. ¶ 6 (JA 290); Peterson Dec. ¶¶ 8-9 (JA 352-53); Arlene Fink, *How to Sample in Surveys* 2-3 (1995) ("A sample is a portion or subset of a larger group called a population. . . . The[] importance [of survey samples] lies in the accuracy with which they represent or mirror the target population."); Gary T. Henry, *Practical Sampling* 11 (1990) ("[S]ample, as it is used in the [statistics] literature and in this book, means a subset of the population that is used to gain information about the population. A sample in this sense is a model of the population."); Raymond J. Jessen, *Statistical Survey Techniques* 14 (1978) ("In the broad sense a sample is any fraction of the elements in the universe. Ordinarily it is a fraction taken in a manner such that it will 'represent' the universe."); Leslie Kish, *Survey Sampling* 18 (1967) ("Survey sampling or population sampling deals with the methods for selecting and observing a part (sample) of the population in order to make inference about the whole population."); Tommy Wright, *Selected Moments in the Development of Probability Sampling: Theory and Practice*, 13 Am. Stat. Ass'n Surv. Res. Methods Newsl. 1 (July 2001) ("When examination of each and every unit in the population to know a particular population characteristic is undesirable or impractical, a *sample*, i.e., a subset or portion of the same population, may be selected to yield satisfactory information regarding the particular population characteristic.").

Common to all these definitions of "sampling" are the notions (1) that the "sample" must be a "fraction" or "subset" or "part" of the population that the sample is intended to represent, and (2) that the "sample" is selected according to some method to ensure that will be a "representative" – a "model" – of the larger population from which the sample is selected.

(b) The distinction between that statistical method and the hot-deck imputation procedures employed in the 2000 census is self-evident and fundamental. Appellants' primary theory seems to be that in hot-deck imputation, each individual "donor" constitutes a statistical "sample." Utah Br. 26. That theory is incorrect in at least two respects. First, the individual donor unit is not selected to be a model of the whole aggregate – it is only a model of a distinct individual nonresponding unit. Second, the individual donor unit is not a "subset" of the "population" it is supposed to represent, which in this case is simply another individual unit. Both points confirm the intuitively obvious: an individual donor unit is not a "statistical sample" of the larger population. At other times, however, appellants seem to conceive of the putative "sample" as the population of *potential* donor units for each unit to be imputed – i.e., the geographically proximate units contacted in NRFU. *Cf.* Utah Br. 21-22. The error is the same: those units were not "selected" in any way to be "representative" of the population to be imputed; indeed, they were not "selected" at all, they were simply all the units on which the Bureau was able to obtain a complete record in its effort to cover every single unit.

At bottom appellants' conflation of imputation with sampling rests on a simple layman's misunderstanding: the presumption that any number less than the whole is a "sample" of the whole. Utah Br. 18-22. Because imputation is used when less than every unit in the population has a recorded response, appellants believe that imputation necessarily in-

volves sampling. A leading 1953 statistical text directly addresses that misconception:

> There has in the past been a tendency to use the term sample to refer to the results of an attempted complete census in which there has been failure to obtain information from a substantial proportion of the units. Its use in this sense is strongly to be deprecated; instead the term *incomplete census* is suggested. The term *sample* should be reserved for a set of units or portion of an aggregate of material which has been selected in the belief that it will be representative of the whole aggregate.

Yates, *Sampling Methods for Censuses and Surveys*, *supra*, at 2. In other words, though any number less than the whole may be a "sample" in common parlance, it is uniformly agreed in the profession that "sampling" connotes a conscious effort to design, in advance, a survey of a subset of the population that will itself be an adequate "model" of the larger population being surveyed. *See supra* at 31-32. The donor units used in the imputation method employed in the 2000 census were not a "portion of [the population] selected in the belief that they w[ould] be representative of the whole aggregate." To the exact contrary: the donor units were the product of every effort to reach "the whole aggregate." They are only a "sample" in the vernacular sense because those complete-coverage efforts were not wholly successful, and records were lost or corrupted. It is a truism to say that the donor units constitute less than the whole; it is a fallacy to say that they therefore constitute a "sampling" of the population.[18]

[18] In view of the foregoing, it is not necessary to distinguish between sampling and imputation on the ground that the former is random while the latter is non-random. Indeed, the random/non-random dichotomy is easily misunderstood, as evidenced by appellants' brief. Appellants spend much effort arguing that imputation, though non-random, is still "sampling" because "sampling" includes both random *and* non-random methods. Utah Br. 22 & n.4, 27-29. The entire argument is a non sequitur: it does not follow from the fact that non-random *sampling* methods exist (which is true) that all non-random *statistical* methods are sampling (which is not true). In fact, our review of the sources cited by appellants, Utah Br. 22 n.4, confirms what appellants' own parenthetical descriptions explicitly suggest: every non-random method of sampling they discuss includes the distinguishing characteristics unique to *all* sampling methods, *viz.*, the selection according to some method (albeit non-random) of a subset of a population such that the subset is a model for the population (or particular portion of the population) being studied. As explained, imputation does not share those characteristics. *Supra* at 32-34; *see* Hogan Decl. ¶ 29 (JA 261-62) (distinguishing non-random sampling methods from imputation).

Appellants derive their mistaken view of sampling primarily by distorting a single Bureau document – the 1997 report to Congress outlining the Bureau's later-invalidated plan for the 2000 census. *See* Report to Congress – The Plan for Census 2000 (Aug. 1997) ("1997 Report to Congress") (AR C0155). According to appellants, the Bureau in that report "explained that 'a "sample" is taken whenever the whole is represented by less than the whole.'" Utah Br. 20 (quoting 1997 Report to Congress 23 (AR C0155)). But here is what the report actually says:

> *In laymen's terms*, a "sample" is taken whenever the whole is represented by less than the whole. *Among professional statisticians*, the term "sample" is reserved for instances when the selection of the smaller population is based on the methodology of their science.

AR C0155 (emphasis added). The Bureau's actual point is almost identical to the point made in the 1953 text discussed above, *supra* at 34. Appellants wreak similar havoc with another statement in this part of the 1997 report:

Utah Br. 18:

> As the Bureau expressly acknowledged prior to this litigation, the term "sampling" is generally understood to refer to *any statistical procedure* in which "information on a portion of the population is used to infer information on the population as a whole." [(emphasis added) quoting 1997 Report to Congress 23 (AR C0155)].

Actual 1997 Report to Congress 23:

> *In our common experience*, sampling occurs whenever the information on a portion of the population is used to infer information on the population as a whole. [(emphasis added) AR C00155.]

Both untruncated Bureau statements are, as we have already seen, a perfectly accurate reflection of the well-recognized *difference* between imputation and sampling: whereas a *layman* might think, based on *our common experience*, that a "sample" is anything that is "less than the whole," a *statistician* will recognize that sampling requires scientific "methodology" (random or otherwise), in the selection of the subset to assure its representativeness. *See supra* at 31-34. Appellants simply omit everything that would make clear that their view is a layman's view, not a statistician's.

2. Contrary to appellants' suggestion, Utah Br. 20 n.2, the Census Bureau's view that hot-deck imputation is not the "sampling" prohibited by § 195 has been clear and consistent for the forty years the Bureau has employed imputation methods. In the *Procedural Histories* published by the Bureau after every decennial census since 1960, the Bureau has disclosed and explained its use of hot-deck imputation. AR C00376, C00384, C00416, C00423. Dozens of other Bureau documents published over the decades have consistently set forth the Bureau's view that hot-deck imputation is a permissible – indeed vital – method for enumerating the population.

Hogan Decl. ¶¶ 10, 31, 51 (JA 252-53, 263, 271-73) (citing documents); *see generally supra* at 3-10, 15-16 (discussing Bureau's consistent use of imputation). And in the *Orr* litigation arising out the 1980 census, of course, the Census Bureau under President Ronald Reagan vigorously defended the use of hot-deck imputation against a challenge under § 195. *See supra* at 7.

What is more, the Bureau's use of imputation in the census has proceeded with the full knowledge and acquiescence of Congress. In addition to the *Procedural Histories* published in connection with every census, direct testimony has advised Congress about the Bureau's use of imputation, and even about the Bureau's view of the distinction between imputation and sampling. Reporting the history of sampling and imputation before the House Subcommittee on Census and Population, Congress in 1991, GAO official L. Nye Stevens explained that the 1970 census used "imputations" *and* "a variety of other statistical procedures, such as sampling." Statement of L. Nye Stevens, Before Subcomm. on Census and Pop., House Comm. on Post Office and Civil Serv., 102d Cong., 1st Sess. 11 (1991) (AR C00678). By contrast, Stevens continued, "[d]ue to concerns about the legality of sampling, the Bureau *did not use sampling* techniques as part of the 1980 census *but did impute* about 762,000 persons into the count." *Id.* at 12 (AR C00679) (emphasis added); *see* Barbara Everitt Bryant (Director, Bureau of the Census), Components of Resident Population, Before Subcomm. on Census and Pop., Comm. on Post Office and Civil Serv., 102d Cong., 1st Sess. 8 (1991) (AR C01287) ("for the last several census, we have determined that the counts are improved if we use a procedure to impute persons for these units, rather than just assume there are no persons in these units"); Statement of Stephen E. Feinberg, Before Subcomm. on Census and Pop., Comm. on Post Office and Civil Serv., 102d Cong., 1st Sess. 6 (1991) (AR C00688) (discussing imputation in 1990 and past censuses).

The Bureau's longstanding, consistent position on the permissibility of imputation under the Census Act deserves the highest degree of deference from this Court. *See Chevron U.S.A. Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837, 842-43 (1984). If deference to an agency's technical expertise is warranted anywhere, it is in this highly specialized area. Appellants' own brief exposes the risk of second-guessing, from a lay perspective, the uniform view of the Bureau's statistical experts that imputation is not the "statistical method known as 'sampling.'"

B. Appellants' "End-Run" Arguments Are Meritless

Appellants are left to argue that failure to interpret § 195 as prohibiting hot-deck imputation would allow the Census Bureau to make an end-run around the invalidation of sampling in *House of Representatives*, thus rendering § 195 a "meaningless prohibition" that is "easily nullified." Utah Br. 25. Appellants' arguments are without merit.

First, appellants insist that allowing imputation would be tantamount to the resurrection of sampling because the two methods have "the same practical effect." *Id.* at 26. They do not: as we have seen, sampling involves a conscious design to contact only a subset of the population, guaranteeing that not all the population will be contacted; imputation is used only after every effort is made to contact every unit, and data is lost, corrupted, or otherwise missing. *Supra* at 3-10, 15-18. The prohibition on sampling is plainly meant to ensure that the Bureau concentrates its efforts on complete coverage. It simply says nothing about what the Bureau should do when all such efforts have been exhausted, and records with missing or unclear data must be processed.

Second, on the basis of the erroneous premise that imputation and sampling are equivalent from a policy perspective, appellants further suggest that the Census Bureau might be motivated to consciously "scale-up" the use of imputation, perhaps even so that as much as 10% of the population is

enumerated through imputation. Utah Br. 27-28. Perhaps, appellants suggest darkly, the Bureau might even reduce resources devoted to follow-up just so that it could employ huge, unprecedented amounts of imputation in the census. Utah Br. 28. Yet appellants do not even attempt to explain what conceivable motivation the Bureau would have for reducing direct contact efforts *just for the sake of increasing imputation*. The integrity of the Bureau is above reproach; for all the decades the Bureau has used hot-deck imputation the sole purpose has been to achieve a more accurate enumeration. *See supra* at 3-10, 15-16. The Bureau well knows that reducing direct contact efforts just to increase the number of units enumerated by imputation would reduce overall accuracy. For that reason the Bureau obviously prefers to enumerate units by direct contact rather than by imputation if at all possible; hot-deck imputation has been used (outside the sampling context) only when at the very end of the process a record still has missing or unclear data. The suggestion that Bureau officials would consciously try to "scale up" the amount of imputation in the census, evidently just to thumb their noses at this Court, is indefensible.[19]

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[19] In a later section of their brief, appellants suggest one other motivation: a desire to manipulate political outcomes. Utah Br. 43 & n.12. This is sheer paranoid fantasy: paranoid, in view of the long and consistent Bureau record of seeking the most accurate enumeration possible; and fantasy, in view of the undisputed fact that the distributive effects of imputation on States' seats *cannot be determined in advance*, Utah Br. 34 (citing DOJ Mem. 15 ¶ 35); *see id.* at 7 (imputation not used to target traditionally undercounted groups). The reality is that imputation can have only *moderating* effects on efforts to manipulate apportionment. The best way to manipulate apportionment through the census is to manipulate direct contact efforts, so that desired groups or areas are counted and undesired groups or areas are shunned. The necessary effect of imputation is to minimize the consequences such efforts, because the units avoided in such a program would end up being enumerated by imputation anyway. Thus, one who is motivated by politics to affect apportionment would actually seek to *eliminate* the use of imputation. It bears

Finally, appellants suggest that Congress would not have prohibited a "relatively reliable" method like sampling and allowed a "relatively less reliable" method like imputation. Utah Br. 29. Appellants' factual premise is incorrect: both methods are reliable for the different purposes for which they are intended, and their numeric accuracy cannot be properly compared as appellants suggest. Hogan Decl. ¶ 23 (JA 259); Bailar *Orr* Aff. ¶ 12 (JA 92). Appellants' own expert explains the flaw in appellants' comparison: imputation methods will of course be more reliable when applied to impute data to 10% of the population from a subset of the population that *has been scientifically selected* (as was proposed in 1997), than when applied to impute data to 10% of the population from a subset that was *not* scientifically selected (as appellants hypothesize). Rubin Decl. ¶ 16-17 (JA 60). The fact that imputation *when used in gross, without a genuine sampling*, would be less reliable is exactly why the Bureau has always tried to exhaust every possible means of direct contact, leaving a very small, non-sampled percentage of the population that must be imputed as a last resort. We agree with appellants to the following limited extent: Congress probably *would* prohibit imputation if the Bureau ever began to rely on it in the outlandish way appellants hypothesize.

C. Status And Occupancy Imputation Cannot Be Meaningfully Distinguished From Size Imputation

Appellants' final statutory argument is that even if the Court does not believe that size imputation is a sampling method, it could still conclude that occupancy and status imputation involve some "sampling" methodology lacking in size imputation. But appellants make no genuine effort to explain what the pertinent difference might be. Appellants' only argument on the point appears to be that, with size imputation, the Bureau at least has knowledge that *some* persons exist in the unit, whereas with occupancy/status imputation, addresses "are *not* known to represent *occupied* units," and "*none* of the so-called persons . . . are known to exist." Utah Br. 31-32; *see id.* at 32-34.

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further noting that imputation has been employed and defended by Presidential Administrations of every political stripe.

There are two problems with this position. First, it is no distinction at all from the perspective of "sampling" methodology. With *all three* types of imputation, the Bureau enumerates the unit by imputing a value from another record – which is either using that record as a "sample," as appellants' entire argument posits, or it is not. The Bureau's degree of certainty as to the existence of "some" persons in the unit has no analytical bearing on the answer. Second, appellants' factual premise is, as we have already seen, incorrect. With respect to both occupancy and status imputation, the Bureau knows with certainty that such records often *do* represent occupied units, and thus that persons enumerated through occupancy/status imputation *are* known to exist. Dozens of studies have established those elemental facts, establishing further that to assume that such persons do *not* exist is to knowingly disregard existing persons. *Supra* at 18-19. That is not a recipe for a meaningful census count, which explains why Congress has never prohibited the use of hot-deck imputation.

III. THE 2000 CENSUS IMPUTATION PROCEDURES DID NOT EXCEED CONGRESS'S BROAD DISCRETION TO DEVISE THE MANNER IN WHICH THE ACTUAL ENUMERATION OF THE POPULATION IS MADE

Article I § 2 of the Constitution, as amended by the Fourteenth Amendment, states that the apportionment of the States must be based on the "whole number of persons in each State," and that "the actual Enumeration" of the population "shall be made" every ten years "in such manner as [Congress] shall by law direct." The scope of the authority

and discretion conferred on Congress by the Apportionment and Census Clauses is unusually broad, as this Court has explicitly recognized: "The text of the Constitution vests Congress with *virtually unlimited* discretion in conducting the decennial 'actual Enumeration.'" *Wisconsin v. City of New York*, 517 U.S. 1, 19 (1996) (emphasis added).[20] And Congress, in turn, "has delegated its broad authority over the census to the Secretary [of Commerce]." *Id.* In view of the Constitution's broad grant of authority to Congress, and Congress's delegation of that authority to the Secretary, this Court has held that the Secretary's election of methods for accomplishing the enumeration must simply be "consistent with the constitutional language and the goal of equal representation," and in practice "need bear only a reasonable relationship to the accomplishment of an actual enumeration of the population." *Id.* at 19-20 (internal quotation marks omitted).

The Bureau's use of imputation in the 2000 census easily satisfies those standards. The Bureau reasonably believes that ignoring record forms that are known to reflect actual people necessarily leads to an enumeration of the population that is less than actual. That view is consistent with an understanding of "actual Enumeration" as used in the Apportionment and Census Clauses to mean the actual population number. And even assuming the phrase "actual Enumeration" works to exclude certain methods of estimation wholly unrelated to efforts to conduct an actual count of the people, hot-deck imputation as used in the 2000 census is still permissible because it is integrally connected to the process of counting persons individually.

[20] The language of the Census Clause is almost identical to Article II § 2 cl. 2 (presidential electors shall be appointed by each State "in such manner as the State Legislature thereof may direct"), which "leaves it to the legislature exclusively to define the method of effecting the object [i.e., appointment of electors]." *McPherson v. Blacker*, 146 U.S. 1, 27 (1892).

A. The 2000 Census Imputation Procedures Bear A "Reasonable Relationship" To The Accomplishment Of An Actual Enumeration Of The Population

The Bureau has explicitly concluded that hot-deck imputation is a necessary tool in its efforts to obtain an actual enumeration of the population of each State. *See, e.g.*, Census Undercount Adjustment: Basis for Decision, 45 Fed. Reg. 69,366, 69,372 (Oct. 20, 1980).[21] That conclusion is without doubt a reasonable one.

There is no genuine dispute that the Bureau's use of hot-deck imputation as a final error-correction method has ensured that the last five censuses were much closer to an actual enumeration of the whole numbers of persons in each State than they would have been otherwise.[22] With respect to all three forms of imputation, the Bureau knows to a certainty that records with inconsistent, incomplete or missing

[21] Appellants incorrectly state that, during the 1980 Census, the Bureau took the position that the phrase "actual Enumeration" would prohibit statistical methods like hot-deck imputation. Utah Br. 39 n.8. Exactly the opposite is true: in the very document cited by appellants, the Bureau agreed that "sampling" is not an "actual Enumeration," but explained at length why hot-deck imputation methods *are* among the "operational facets of 'actual Enumeration.'" 45 Fed. Reg. at 69,373.

[22] Appellants err in suggesting that hot-deck imputation does not improve distributive accuracy. Utah Br. 34. First, the pleading they cite says only that distributive effects cannot be predicted *in advance*, which is true, since the states' relative response rates cannot be predicted with any certainty. Second, imputation plainly *can* improve distributive accuracy, in any census in which some states turn out to have comparatively low record-return or data-capture rates, for whatever reason. Failing to impute would leave those states with a proportionally less-than-actual population count; imputation would improve the distributive accuracy of the count.

data often reflect units with persons in them. *Supra* at 16-19. Thus imputation happens either way: the sole question is whether to enumerate the unit in every single case with the implausible value of "zero," or to enumerate the unit by imputing a value that would plausibly reflect actual persons, if any, that would otherwise be unenumerated.

The bottom line is that if the Bureau assigns a "zero" to all such records, it will knowingly disregard actual persons, and the census will have consciously identified *less* than the "whole numbers of persons in each State." In common sense terms, the census would be a *non*-actual, or false, enumeration of the population. J.S. 25a (imputing zero in all cases of inconsistent or missing data "appears clearly inconsistent with the constitutional imperative of an actual enumeration"). To be sure, no census by any method could ever enumerate the population with perfection. But the Framers recognized exactly that problem, and thus conferred broad discretion on Congress in determining the actual enumeration. This Court acknowledged that discretion in *Wisconsin*, holding that the Bureau is not constitutionally required to employ every method that will bring the final enumeration closer to the actual enumeration, so long as its methods have a "reasonable relationship" to the accomplishment of the constitutional goal. 517 U.S. at 20. It follows almost by definition, however, that a decision to employ a method that *does* move the census count closer to the actual population enumeration in each State is within the same range of discretion.

B. The 2000 Census Imputation Procedures Are "Consistent With" The Constitutional Language

Appellants argue that the phrase "actual Enumeration" as used in the Census Clause refers to a very particular method of counting people. Thus Congress's "virtually unlimited discretion" to accomplish an "actual Enumeration" turns out to be limited essentially to funding and resource allocation.

Utah Br. 38 n.6. But the proper question is whether the Bureau's view is "consistent with" the constitutional language, not whether it is the only permissible interpretation. *Wisconsin*, 517 U.S. at 19. Appellants err in suggesting that no understanding of the Apportionment and Census Clauses would sanction the Bureau's use of imputation. In fact, the better reading of the Clauses is that the phrase "actual Enumeration" refers simply to the determination of the actual population number, allowing the use of hot-deck imputation to help identify that number.

1. At the outset it is important to see why the phrase "actual Enumeration" must be analyzed in its particular textual setting: the extratextual dictionary definitions relied upon by appellants, drawn from the concurring opinion in *House of Representatives*, 523 U.S. at 347, are of little ultimate guidance, for they suggest not one but three distinct meanings of "enumeration." One meaning suggests a *specified list* or *catalog* of *named things* in a population. Utah Br. 36 ("[a]n account of a number of things, in which mention is made of every particular article"). This is the meaning conveyed by "enumerated powers," or by the Ninth Amendment's phrase "the enumeration in the Constitution, of certain rights." It was a valid meaning of enumeration at the time, but by no means necessarily the meaning the Framers intended to convey in the Census Clause. A second meaning suggests a method of *one-by-one* counting. *Id.* ("[t]o count or tell, number-by-number"; "[t]o reckon up singly; to count over distinctly"). Yet a third meaning suggests simply the act of identifying the *overall number* of things in the population. *Id.* ("to number"; "the act of numbering or counting over"; "number told out"). The latter two meanings were equally valid at the time; the dictionaries alone simply do not tell us which meaning the Framers intended to invoke in the Constitution. But the ambiguity in these definitions does demonstrate that hot-deck imputation is consistent with the constitutional language, in particular the third of those definitions.

Further textual analysis of the Clauses only buttresses that conclusion.

2. The first clause of Article I § 2, as amended by § 2 of the Fourteenth Amendment, provides that "Representatives shall be apportioned among the States according to their respective numbers, counting the whole number of persons in each State, excluding Indians not taxed." This clause establishes a fixed and plain rule for apportionment: Representatives are to be apportioned "according to [the States'] respective numbers." And the States' "respective numbers" are defined as "the whole number of persons in each State, excluding Indians not taxed." Thus the apportionment rule, which is fixed by this clause, is in theory violated if Representatives are apportioned according to any population figure that is less than or different from "the whole number of persons, excluding Indians not taxed."

Thus the question is, how is the "whole number of persons" to be identified? The next clause answers the question: "The actual Enumeration shall be made [every ten years] *in such manner as [Congress] shall by law direct.*" This sentence can only be read in conjunction with the one immediately preceding it, for the use of the definite article *the* to identify "Enumeration" establishes that a particular "enumeration" is being referred to, and the only candidate is found in the previous sentence, i.e., the "respective number[] of persons" in each State. Thus, consistent with the *third* dictionary definition above, the phrase "actual Enumeration" as used here means the act of identifying the actual number of persons in each State – the "number told out." It is not a specification of the exclusive means by which that identification must be made.

The structural usage of "actual Enumeration" to refer to the determination of the actual population figure, rather than to a particular process for making that determination, is confirmed by the Capitation Clause, Article I § 9 cl. 4, which

provides: "No Capitation, or other direct, Tax shall be laid, unless in proportion to the Census or Enumeration herein directed to be taken." It makes sense to speak of a tax being laid in proportion to the actual population of each State; it makes no sense to speak of tax proportional to *a specific process* of identifying that population. This parallel use of the term "enumeration" strongly suggests the Apportionment and Census Clauses, too, refer simply to the identification of the population figure, not the means thereto.

3. The history of the drafting of those Clauses further confirms the reading of "actual Enumeration" to mean identification of the actual population number. The initial proposals for population-based apportionment and/or direct taxation all specified a periodic "census." 1 Max Farrand, *The Records of the Federal Convention of 1787*, at 570-71, 575, 594, 595, 600 (1966 ed.). The Committee on Detail subsequently proposed a draft Constitution embodying various agreed-upon proposals, and it changed the word "census" to "number":

> The proportions of direct taxation shall be regulated by the whole *number* of white and other free inhabitants [plus three-fifths of slaves] . . . which *number* shall . . . be taken in such manner as the said Legislature shall direct.

2 Farrand, *supra*, at 182-83 (emphasis added). After a month of debate on that and other provisions, with *no* discussion about the methodology for identifying the "number of inhabitants," the Committee on Style took that language and produced what ultimately became the language of the Apportionment and Census Clauses, substituting the phrase "actual Enumeration" for the word "number." *Id.* at 590. There is no historical evidence that the Committee intended by that substitution to deviate from the plain meaning of the word "number." *Cf. Nixon v. United States*, 506 U.S. 224, 231 (1993). And, as shown above, careful textual analysis dem-

onstrates why "actual Enumeration" can quite reasonably be read to mean the identification of the actual population number as it is used in the Clauses.

C. Reading "Actual Enumeration" To Prohibit Gross Estimations Does Not Prohibit The 2000 Census Imputation Procedures

The Court need not decide whether "actual Enumeration" is in fact best read to refer to the determination of the actual population figure, for even assuming the phrase does invoke some limitation on the methods for making that determination, that limitation does not exclude all counting-related statistical methods for enumerating individual housing units, including hot-deck imputation as used in the 2000 census. Appellants labor at length to establish that the Framers were aware of various schemes for broadly estimating state and national populations on the basis of agricultural, maritime, and other non-population-based records, and did not consider them to be "enumerations" of the population. But that evidence shows at most that "actual Enumeration" would exclude sample surveys and other "gross statistical estimates." Utah Br. 36. Even on the view that an actual enumeration demands some form of individualized counting process, nothing in the Census Clause prohibits the use of imputation to provide count data on a few particular addresses *as part of* what is, by any account, an exhaustive actual enumeration of the population under this conception of the phrase.

First, imputation is a process employed only after massive direct coverage efforts have been made. In this respect it differs even from sampling, which is by definition a conscious effort *not* to engage in complete coverage. And it certainly differs from the rough guesses of the founding era, which were not based on population-count data at all, but instead on data maintained for entirely distinct purposes.

Second, imputation is an effort to enumerate persons on an individualized, housing-unit-by-housing-unit basis. In

this respect it differs dramatically from the gross estimates of the founding period. Indeed, imputation actually reflects census-taking practices going back to the first days of the census. The census has *never* required enumerators to personally count each and every person – to count by heads, as it were. The first censuses records were taken not person-by-person but household-by-household, *Encyclopedia*, *supra*, at xi, and by the end of the nineteenth century enumerators were even allowed to rely on hearsay from neighbors and others as needed, Hogan Decl. ¶ 11 (JA 253-54). Appellants' objection to imputation on the ground that "the Bureau ha[s] no actual knowledge as to the number of occupants" in a given housing unit, Utah Br. 37, applies with equal force to census methods that have prevailed the entire history of the census. Once the Bureau begins to rely on some evidence other than the personal observation of a person acting on the Bureau's behalf, the Bureau itself obviously has no "actual knowledge" of the population count. Thus the question necessarily reduces to one of evidentiary reliability, *viz.*, whether the Bureau has sufficient reason to believe that a particular method of indirect observation will, on balance, accurately capture the population of units the Bureau cannot personally observe. And that was a question left by the Constitution to the reasonably exercised discretion of Congress.

Third, and related to the above two points, hot-deck imputation is not subject to the kind of political manipulation to which gross estimating techniques may yield. The highly subjective rough guesses of the founding era were surely subject to manipulation on their own terms, and certain types of sampling may be as well, since particular subpopulations can be targeted for selection. There is no subjectivity, and no selective sampling, with hot-deck imputation. Indeed, appellants' sole claim for the manipulability of imputation is not directed at imputation at all, but at forms of manipulation that could take place *without* imputation: reduction in follow-up resources and a selective approach to the inclusion of

addresses on the DMAF. Utah Br. 43 n.12. As we have seen, the sole effect of imputation is to *reduce* the consequences of such manipulations. *Supra* note 19. If the opportunity for political manipulation is what distinguishes the methods the Framers intended to exclude from the census process, the strict head-counting favored by appellants would be the first to go, suggesting that the criterion is suspect from the outset. But even if concerns about manipulation led them to exclude only gross estimations, the fact that imputation is not subject to such manipulation demonstrates why it is not among the gross estimations the Framers disfavored.

Appellants' argument boils down to this: the Census Clause prohibits Congress from using imputation to supplement exhaustive contact efforts and thereby obtain a more accurate count of the actual number of persons in each State (because that is not an "actual Enumeration" of those persons), but the Clause would allow Congress to conduct a half-hearted national "headcount" with minimal resource and effort (because that *is* an "actual Enumeration"). Utah Br. 50. There is a more sensible reading: the constitutional objective of the Apportionment and Census Clauses is that Congress identify the actual number of persons in each State, and because that objective cannot be accomplished with perfection by any method, the Constitution confers on Congress substantial discretion to devise the manner best suited to accomplish it. Even assuming that the "actual Enumeration" phrase limits the kind of methods Congress may authorize in the pursuit of that objective, the logic and history underlying such limits would have no application to the 2000 census imputation procedures. Those procedures remain well within Congress's discretion to direct the manner in which the actual enumeration is accomplished.

CONCLUSION

For the foregoing reasons, the judgment of dismissal should be affirmed.

Respectfully submitted,

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IN THE

Supreme Court of the United States

STATE OF UTAH, *et al.*,

Appellants,

v.

DONALD L. EVANS, *et al.*,

Appellees.

On Appeal from the United States District Court for the District of Utah

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I. UTAH'S INJURIES ARE REDRESSABLE.

As the Solicitor General acknowledges, Utah's claims "are justiciable under this Court's decisions in *United States Dep't of Commerce* v. *Montana*, 503 U.S. 442 (1992), and *Franklin* v. *Massachusetts*, 505 U.S. 788 (1992)." US Br. 12. North Carolina's jurisdictional arguments were raised and rejected in those two cases and in any event they are meritless.

North Carolina's principal argument is that Utah's injury is not redressable because the "deadlines prescribed for executive action" under the Census Act would preclude the President from forwarding a revised apportionment count to the Clerk of the House. NC Br. 25. Although North Carolina suggests that its argument "was not directly addressed by any of the briefs in *Franklin*," *id.* at 27, in fact the Solicitor General's brief in that case expressly argued that "[t]he time limits" imposed by the Census Act "foreclose any opportunity for judicial review." Brief for Appellants 32, *Franklin* v. *Massachusetts* (No. 91-1502) (U.S. filed April 13, 1992). This Court rejected that argument.

Justice O'Connor's opinion (a four-Justice plurality on the standing issue) concluded that the President has authority to revise the census, and presumed that he would do so if presented with a count revised pursuant to a court order. *Franklin*, 505 U.S. at 803 (O'Connor, J., joined by Rehnquist, C.J., and White and Thomas, J.J.). Justice Stevens (writing for a four-Justice concurrence) went even further, concluding that the President has no power to "modify the census results reported by the Secretary" and thus would be *required* to forward a revised count to the Clerk of the House. *Id.* at 811 (Stevens, J., joined by Blackmun, Kennedy, and Souter, J.J.).[1]

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[1] As the Solicitor General notes, North Carolina's position is also foreclosed by *Department of Commerce* v. *Montana*, 503 U.S. 442 (1992), where this Court rejected a similar argument. *Id.* at 459.

Justice Stevens also explained more explicitly the fundamental flaw in the suggestion that the statutory timing provisions preclude review. He noted, even if "the President's report to Congress . . . signaled the end of a census-adjustment process, that would be relevant only in determining when a challenge was ripe." *Id.* at 815 n.13. Finality of executive action under a statute, in other words, is a *prerequisite*, not a *bar*, to judicial review.

The fact that Congress enacted a statute in 1997 authorizing "*prospective* relief against the Bureau's use of statistical methods," NC Br. 29-30 (citing Pub. L. 105-119, Title II, § 209(a)(8), 111 Stat. 2481), is similarly unhelpful to North Carolina. While the statute recognizes that post-census relief may be ineffective in some circumstances, it contains no language foreclosing such relief. Moreover, such a construction would impede the statute's stated purpose "to ensure that the decennial enumeration of the population is conducted in a manner consistent with the Constitution and laws of the United States."[2] Pub. L. 105-119, § 209(a)(1).

II. IMPUTATION IS A FORM OF "SAMPLING."

Section 195's prohibition against "sampling" plainly condemns imputation under the definition embraced by the Bureau itself prior to this litigation: it uses data on a portion of the population to make inferences about the population as a whole. See Ut. Br. 18. This construction is also consistent with definitions accepted among statisticians, with the history of the Census Act, and with this Court's decision in

[2] If North Carolina's argument were accepted, the Bureau's use of imputation would be effectively unreviewable under § 195. A pre-census challenge would not be available because, as North Carolina concedes, "the distributive effects of imputation [on apportionment] cannot be determined in advance." NC Br. 30 n.15. And North Carolina's suggestion that individual voters could bring a dilution action challenging redistricting, *id.* at 30 n.15, ignores the fact that § 195 applies only to the use of sampling for apportionment, not for redistricting.

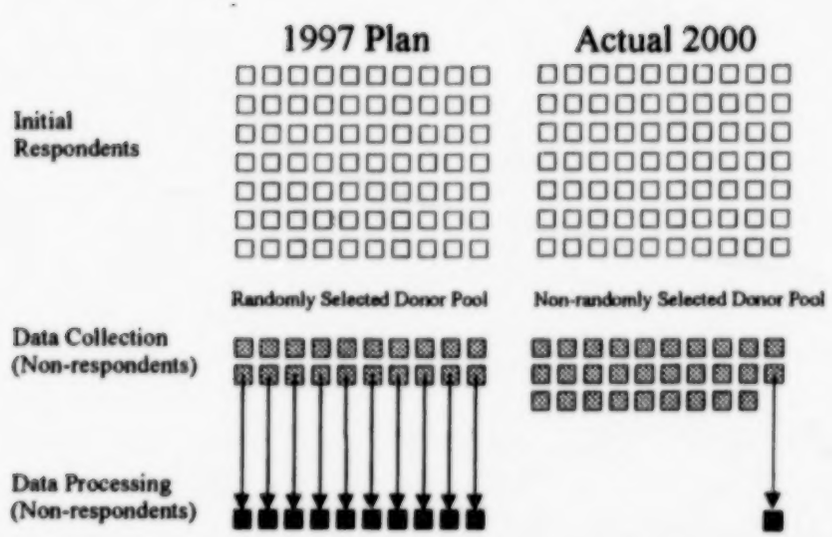
Department of Commerce v. *United States House of Representatives*, 525 U.S. 316, 324 (1999). Ut. Br. 20-22.

Appellees' attempts to limit the statutory term in a way that excludes imputation are unpersuasive. To be sure, they now refuse—and properly so—to defend the district court's adoption of the Bureau's principal theory below—that § 195's reference to "sampling" refers only to *random* sampling. Instead, appellees now claim that sampling involves a "deliberate" or "*conscious design* to contact only a subset of the population, *guaranteeing* that not all the population will be contacted," whereas "imputation is used only after" the Bureau has attempted "to contact every unit." NC Br. 38 (emphasis added); see US Br. 17 n.3; *id.* at 18-22. This definition and proposed distinction—like those embraced by the district court—are not only indefensible, they ignore the fact that imputation is as much a form of sampling as the procedure invalidated in *House of Representatives*.

A. Appellees' Focus On Whether Sampling Is "Pre-Meditated" Is Indefensible.

Appellees' reliance on the fact that the Bureau's use of imputation was not "conscious" or "deliberate" is misplaced—not only because it fails to distinguish this case from *House of Representatives*, but also because a decision to accord any significance to that fact would render § 195 virtually meaningless. Although appellees carefully stop short of arguing that *House of Representatives* was wrongly decided, or that Congress acted unwisely in broadly prohibiting the use of "sampling" in the census, their argument implicitly advances both of those propositions.

1. Like the sampling procedure proposed by the Bureau in 1997 ("1997 Plan"), imputation entails a deliberate, pre-meditated decision to estimate housing units that the Bureau failed to count. This point is made clear by the diagram from page 9 of Utah's opening brief (the accuracy of which is not in dispute):



Under both the 1997 Plan and the procedure used in the 2000 census, the Bureau first contacts all 100 units in the hypothetical tract by mailing census questionnaires, recognizing that (a) only 70 of those units are likely to respond, and (b) enumerators will have difficulty contacting some of the remaining 30 units during the non-response follow-up process ("NRFU"). To address that concern, the Bureau assembles a "donor pool," consisting entirely of units (the shaded boxes) that did not return a questionnaire, but were counted during NRFU. By "conscious design," the Bureau then estimates each unit that remains uncounted at the conclusion of NRFU.

Specifically, the Bureau "imputes" to each such unit (the black boxes) the occupancy characteristics of a single "sample" unit, which is the estimated unit's nearest neighbor that was included in the donor pool. Thus, both procedures consist of the same two "conscious" and "deliberate" steps: (1) a "data collection" phase, where the Bureau obtains information from counted units that will eventually comprise the donor pool, and (2) a "data processing" phase, in which the Bureau assigns data from a donor unit to an uncounted unit.

Nor are the two methods distinguishable on the related ground offered by appellees—that § 195 does not extend to methods of sampling that follow an initial attempt to "contact

every unit." NC Br. 38; see US Br. 21-22. Under the 1997 Plan, the Bureau would have attempted to "contact every unit" by mail. See *House of Representatives*, 525 U.S. at 324. In any event, the notion that the Bureau has made "every effort" to "contact every unit," NC Br. 38, means only that sampling was used as a "supplement to"—and not a "substitute for"—an enumeration, and that distinction is legally irrelevant. 525 U.S. at 342.

Finally, the notion that the 1997 Plan is more deliberate than imputation in that it contemplates a specific percentage of units that will be estimated following NRFU is similarly illusory. Under the 1997 Plan, the Bureau expressly anticipated that in some census tracts, more than 90% of the units would respond by mail—thus leaving the number of units to be estimated unspecified, and determined by the fortuity of the mailback response rate. Bureau of the Census, *Report to Congress—The Plan for Census 2000*, at 28, 37 (Aug. 1997) ("Census 2000 Report") (AR C00160, C00169).

2. In any event, appellees' distinctions have no bearing on whether a method of estimation qualifies as "sampling." First, in *House of Representatives*, this Court resolved an ambiguity in the Census Act by reference to the nearly 200-year-old requirement of "a complete enumeration" unaltered by any statistical adjustment. 525 U.S. at 337. This same historical context indicates that the Congress that enacted § 195 was hardly focusing on the distinctions proposed by appellees. Indeed, "sampling" appeared in the statute in 1957 for the purpose of authorizing the Bureau to seek non-apportionment data (like that now sought in the "long form") from a "portion of the universe." *Amendment of Title 13, United States Code, Relating to Census, Hearing on H.R. 7911 before the House Comm. on Post Office and Civil Serv.*, 85th Cong. 7 (1957); see H.R. Rep. No. 85-1043 at 10 (1957). The authorization of sampling, in other words, was merely a license to gather non-apportionment data by "less than a complete enumeration," *id.*—an exception to the then-existing

requirement that "every item of information and all particulars required for any census" be obtained by personal visits to every household. 525 U.S. at 336. Clearly, the Congress that authorized such use of sampling would not have limited the Bureau's efforts to collect non-apportionment data to methods that announced in advance a premeditated number of households required to answer long-form type questions. The point was merely to relax the requirement of a complete enumeration for such purposes.

Second, appellees offer no persuasive support for their assertion that the scholarly understanding of sampling requires the predetermination of a fixed percentage of the population to be estimated. In fact, the principal source relied on by North Carolina, Frank Yates, *Sampling Methods for Censuses and Surveys* (2d ed. 1953); NC Br. 34, also cited by the Solicitor General, US Br. 19, contradicts appellees' definition. Yates notes that sampling may be used in a "complete census" in which an initial attempt is made to contact all households, Yates, *supra* at 128, as a "way of dealing with non-response," *id.* at 130. The method of sampling discussed by Yates is the same technique used by the Bureau under the name of imputation: after an attempt to enumerate everyone, "initial non-respondents who subsequently respond can be treated as a sub-sample of all initial non-respondents." *Id.* Thus, it is incorrect to suggest that the scholarly notion of sampling requires a conscious decision not to count a specific percentage of the population.[3]

---

[3] To the contrary, in the field of statistics the term "sampling" can refer to any technique for gathering data from something less than an entire population—even where the sample design focuses not on observing a particular percentage of the population, but on "some portion of the universe that happens to be handy." W. Edwards Deming, *Sample Design in Business Research* 32-33 (1960). For example, an effort to gather data only from individuals that happen to respond to a mailed questionnaire is a form of "nonprobability sampling." *Id.*; *accord* Arlene Fink, *How to Sample in Surveys* 17 (1995); Leslie Kish, *Survey Sampling* 19 (1967); M. Kendall & W. Buckland, *A Dictionary of Statistical Terms* 42 (1957); Gary T. Henry, *Practical Sampling* 18 (Applied Soc. Res. Methods Series Vol. 21, 1980).

Third, appellees' distinctions would nullify the statute and eviscerate this Court's holding in *House of Representatives*. Under appellees' approach, the Bureau could circumvent § 195 merely by postponing (or concealing) the precise extent of its intent to use sampling until after its enumeration efforts were complete—thereby creating the impression that its decision was not pre-meditated. And, so long as the Bureau made some initial attempt to "contact every unit" and did not specify a precise percentage of the population that would not be contacted, the Bureau could estimate increasing portions of the population—up to and exceeding that proposed under the 1997 Plan. The Bureau itself does not dispute that it could do so by adjusting the scope and intensity of its enumeration efforts. Congress could not have intended the ban on sampling to turn on such facile changes in methodology.

Nor should Congress be presumed to have intended a standard as unworkable as the one proposed by appellees. Under this standard, litigation would inevitably follow every decision to use sampling in the census, leaving the courts to resolve unanswerable questions such as whether the Bureau had made a sufficient attempt to "contact every unit" and whether it sufficiently contemplated a specific percentage of units to be estimated—thus assuring that the census will perpetually "generate[] a number of reapportionment controversies." *Franklin*, 505 U.S. at 791. Fortunately, however, Congress has enacted legislation forbidding the use of *all* forms of sampling in the census.

B. Imputation Violates § 195 Regardless Of How The Relevant "Sample" Is Defined.

Appellees also err in their assertion that Utah's construction of sampling "rests on a simple layman's misunderstanding of

the word 'sampling.'" NC Br. 33; see US Br. 24-25. It is true that "'[a]mong professional statisticians, the term "sample" is reserved for instances when the selection of the smaller population is in fact based on the methodology of their science.'" US Br. 26-27 (emphasis omitted); see NC Br. 34-35. Imputation is unquestionably based on the "methodology of [statistical] science." In fact, the Bureau itself describes imputation as a "statistical methodology," and makes clear that "[i]mputation relies on the statistical principle of 'homogeneity,' or the tendency of households within a small geographic area to be similar in most characteristics." *Census 2000 Report* at 23, 56 (AR C00155, C00188).

Moreover, appellees are mistaken in their assertion that the statistical literature limits the term "sampling" to "a survey of a subset of the population that will *itself* be an adequate 'model' of the larger population," and that the "donor units used in the imputation method" are not samples in this sense. NC Br. 34 (emphasis added) (quoting Yates, *supra* at 2). First, the statistical literature expressly rejects the notion that a "sample" must itself be a model of the full population. See Deming, *supra* at 32-33; Fink, *supra* at 17; Kish, *supra* 19; Kendall & Buckland, *supra* at 42; Henry, *supra* at 18. This is confirmed not only by the extensive scholarly definitions cited in Utah's opening brief, Ut. Br. 21 (defining sampling to encompass any attempt to draw inferences about the full population from a subset), but even by the Yates text cited by appellees for this proposition, NC Br. 34.

The Yates quotation in North Carolina's brief is taken out of context from a section that simply makes the point that an "incomplete census" in which "there has been a failure to obtain information from a substantial proportion of the units" should not be treated as a random, representative "sample" of the full population. Yates, *supra* at 2. That rather obvious criticism in no way implies, however, that individual housing units *can never* be used as "samples" or as part of a method of "sampling." As noted above, *supra* at 6, Yates elsewhere

acknowledges the potential for the use of individual housing units as "samples" in what Yates calls "[t]he simplest way of dealing with nonresponse" when conducting a "complete census." Yates, *supra* at 130.

This sort of sampling theory is precisely what is behind the Bureau's method of imputation. The "initial non-respondents who subsequently respond" are those that are placed in the "donor pool." They are then used as a "sample" of the "final non-respondents" on the statistical assumption that such samples are "expected to be more like the initial non-respondents than the general population." And the resulting estimates are ultimately aggregated to enable the Bureau to make inferences about "the larger population." Thus, while an individual housing unit is not *itself* a "model of the larger population," there can be no doubt that it is a "sample" in the sense that it is chosen as a model of sub-sets of that population (*i.e.*, the unobserved addresses) with an eye toward estimating the population as a whole.

But even if North Carolina were correct that the relevant "sample" is the entire donor pool rather than each individual donor unit, that would not help the appellees distinguish imputation from the 1997 Plan. In the previous example, the donor pool used in both procedures consists of 20 randomly selected units under the 1997 Plan, and 29 non-randomly selected units under hot-deck imputation. Under North Carolina's argument, the donor pool in each case is the relevant "sample" because it is deemed representative of the "population" (really a sub-population) of all initially non-responding units. Further, in each case some *subset* of that sample—the ten donors in the 1997 plan and the single donor in the imputation example—is used to draw an inference about the relevant population. And in each case (ironically), the means by which that inference is drawn is the same, namely, assigning to each unobserved, non-sampled unit the occupancy characteristics of an observed, sampled unit. Accordingly, even under North Carolina's definition, if the

Bureau's 1997 Plan constitutes unlawful "sampling," as this Court held, the imputation procedure at issue here clearly constitutes unlawful "sampling" as well.

Thus, once again appellees' argument cannot be adopted without silently overruling this Court's decision in *House of Representatives*. Indeed, the *only* notable difference between the donor pool used in hot-deck imputation and that prescribed by the 1997 Plan is that the former was selected on a non-random basis—and is therefore less representative of the population it is used to estimate. Thus, although appellees wisely have abandoned the random/non-random distinction, the result they seek would revive that distinction through the back door—producing the perverse result that the random (and relatively reliable) method in *House of Representatives* would be forbidden while the non-random (and relatively unreliable) method of imputation would survive. Congress clearly did not intend this absurd result.

C. Occupancy And Status Imputation Are Especially Unlawful Under The Census Act.

Although all forms of imputation constitute sampling, Utah explained in its opening brief that the use of "status" and "occupancy" imputation—used respectively to estimate units that are not known to exist, and not known to be occupied—is particularly unjustified. Ut. Br. 30-35. Appellees fail to respond to the bulk of that discussion. Their limited response focuses almost entirely on an obscure statement in a Census Bureau memorandum suggesting broadly that because 75% of all status-imputed addresses "had been added to the [Master Address File] during the 2000 census by field enumerators or by respondents themselves," "the Bureau had a substantial basis for regarding those units as valid residential addresses." US Br. 32 (quoting JA 445-47); see NC Br. 41. The mere fact that an address is added by a field enumerator, however, provides no conclusive information about whether it is a valid housing unit (and not, for example, a business) or whether it is occupied. Thus, appellees' attempt to rehabilitate status

imputation leaves unrebutted the undisputed fact that status and occupancy imputation fail even under the standards adopted by the district court and by the dissenting opinions in *House of Representatives*. See Ut. Br. 32-35.[4]

D. Deference Is Inappropriate.

Appellees' request for deference is equally unpersuasive. *Chevron* deference is inappropriate not only because the statutory language is unambiguous, but also because the Bureau's current construction (1) has never been articulated outside the context of litigation, *Bowen* v. *Georgetown University Hospital*, 488 U.S. 204, 213 (1988), (2) "lack[s] the force of law," and therefore "do[es] not warrant *Chevron*-style deference," *Christensen* v. *Harris County*, 529 U.S. 576, 587 (2000); (3) is inconsistent with the history of the decennial census, as well as the Bureau's own prior statements regarding the scope of § 195, Ut. Br. 23-25; and (4) raises grave constitutional doubts, *Edward J. DeBartolo Corp.* v. *Florida Gulf Coast Building & Construction Trades Council*, 485 U.S. 568, 574-75 (1988); Ut. Br. 46 n.13.

Equally unpersuasive is appellees' argument that Congress' 1976 reenactment of § 195 is evidence of its "acquiescence" in the Bureau's construction. Appellees simply make no

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[4] Similarly, North Carolina asserts that "over 90%" of occupancy imputations were based on returns that indicated the unit was "vacant," but for which some "'person information'" was provided. NC Br. 17 (quoting JA 447). But in the source cited for this assertion, the "over 90%" figure merely refers to the percentage of "Enumerator Returns," not the percentage of occupancy imputations in which "person information" was provided. Moreover, the existence of "person information" means nothing with regard to a unit's occupancy status as of April 1, 2000. The unit could well have been a vacation home, which would make that unit unoccupied for purposes of the apportionment count. Or it could have been completely vacant on April 1, 2000, but subsequently occupied by someone who moved in after that date but had already been enumerated elsewhere. *See* JA 443-450.

effort to establish that "the record of congressional discussion preceding reenactment makes [] reference to" any "interpretive position" by the Bureau concerning the statute's application to imputation, and thus under this Court's precedents § 195's "'re-enactment'" is "without significance," *Brown* v. *Gardner*, 513 U.S. 115, 121 (1994).

III. IMPUTATION IS NOT A METHOD OF "ACTUAL ENUMERATION."

Hot-deck imputation also fails on the ground that it is not a method of "actual enumeration" as required by the Census Clause. Appellees' notion of an "actual enumeration" is thoroughly undermined by the historical record.[5] Their various attempts to sidestep the historical understanding are equally unpersuasive.

A. Imputation Is Incompatible With The Original Understanding Of An "Actual Enumeration."

Appellees first assert that an "actual enumeration" need not be limited to an actual count, but may broadly encompass any conceivable "method 'of ascertaining the number of' persons . . . within each State." US Br. 33; NC Br. 45. This notion of an enumeration, however, is incompatible with the original understanding of the constitutional terminology. The founding-era dictionary definitions of "enumeration" relied on by Utah here confirm that an enumeration is "an actual counting, and not just an estimation of number." *House of Representatives*, 525 U.S. at 346-47 (concurring opinion).

Appellees fail to offer any persuasive historical support for their more liberal notion of an enumeration. Tellingly, the

[5] The publication by one of appellants' counsel, Thomas R. Lee, *The Original Understanding of the Census Clause: Statistical Estimates and the Constitutional Requirement of an "Actual Enumeration,"* 77 Wash. L. Rev. 1 (2002), from which Utah's briefs borrow, is available online at www.law2.byu.edu/Faculty_Pub/Article_actual_enumeration.pdf.

Solicitor General's definition is drawn not from founding-era materials but from a 1933 dictionary. US Br. 33. North Carolina's contention that estimation falls within Utah's founding-era definitions of "enumeration" as "the act of numbering or counting over" is no more persuasive. *Id.* The complete definitions make clear that the *method* of "numbering" or "counting over" contemplated by the verb "enumerate" is incompatible with a mere estimate: they do so by defining enumerate as "[t]o reckon up *singly*; to count over distinctly." Samuel Johnson, *Dictionary of the English Language* 658 (4th ed. 1773) (emphasis omitted); see also Thomas Sheridan, *Complete Dictionary of the English Language* (6th ed. 1796) (defining "enumerate" as "[t]o reckon up singly; to count over distinctly"). Thus, North Carolina's misleading parsing of the founding-era definitions cannot obscure the fact that, under those definitions, the constitutional language is simply "incompatible" with the use of statistical estimates. 525 U.S. at 347 (concurring opinion).

In any event, any supposed ambiguity in the dictionary definitions disappears upon examination of the unrefuted record put forward by Utah: (1) that an "actual enumeration" was an established term of art used in both America and Britain to distinguish between methods of statistical estimation and an actual counting of population, see Ut. Br. 39-41; (2) that the constitutional debate focused on the need to assure a "permanent and precise" standard for apportionment, and that delegates rejected alternatives on the ground that the rule for apportionment should be "fixt" rather than being based on an "estimate," *id.* at 41-43; (3) that statements by Washington, Jefferson, and Madison at the time of the first census show that the Framers understood an enumeration to be a specific method "required by the constitution," but which would necessarily result in an undercount, *id.* at 43-45; and (4) that "[f]rom the very first census . . . Congress has prohibited the use of statistical sampling" to adjust the apportionment count, initially

requiring personal visits, and then expressly prohibiting methods of "sampling," *House of Representatives*, 525 U.S. at 335. Because Utah's showing on these points stands unrefuted, appellees' conception of an enumeration must be dismissed as contrary to the original understanding.

B. Appellees' Attempts To Sidestep The Original Understanding Are Unpersuasive.

Appellees' attempts to sidestep the original understanding by invoking the Constitution's structure and its drafting history are equally unpersuasive.

1. The structure of the Census Clause does not help appellees. As amended by the 14th Amendment, Article I, Section 2, Clause 3 of the Constitution states (in what the Solicitor General calls the "Apportionment Clause") that "Representatives shall be apportioned among the several States according to their respective Numbers, counting the whole number of persons in each State." The Constitution then provides for "[t]he actual Enumeration" of such "[n]umbers" in a second provision (which he terms the "Census Clause"). According to appellees, the Census Clause addresses merely procedural issues such as timing, and the use of "the definite article" in that clause means that the "actual enumeration" provision may be dismissed as "implicit in what has come before." US Br. 33; NC Br. 46.

The notion that the "actual enumeration" provision is shorthand for an apportionment "according to . . . respective numbers, counting the whole number of persons in each State" is entirely circular. It begs the dispositive question of what the Framers meant when they referred to both an "actual enumeration" and a counting of "respective numbers." Thus, even if the "actual enumeration" were understood as synonymous with an apportionment "according to . . . respective numbers," the one-sided historical record before the Court suggests that *both* provisions were understood to contemplate an actual count.

Second, the constitutional structure also belies the notion that only the Apportionment Clause addresses methodology, and that the Census Clause addresses only the procedural question of timing. The Census Clause does prescribe the timing of the census—requiring the first census to be conducted "within three Years after the first Meeting of the Congress of the United States, and within every subsequent Term of ten Years." But the Census Clause also addresses the *nature* of the census—requiring an "actual enumeration" rather than something else. While the "enumeration" must be conducted "in such manner as Congress may direct," the tally has to be based on an "enumeration," not an estimate. Thus, the structure of the Census Clause merely reinforces the plain, original meaning of its language.

2. Appellees' reliance on the Capitation Clause in Article I, Section 9, Clause 4 is similarly incorrect. It may be that the "phrase 'Census or Enumeration herein before directed to be taken' can only be understood to refer to the 'actual Enumeration' mandated by Article I, Section 2, Clause 3." US Br. 34. But such equivalence is hardly a license to disregard the original understanding of an "enumeration." Instead, the fact that "census" and "enumeration" are treated as synonyms in the Constitution merely begs the question as to how those terms were understood in the founding era. Inasmuch as the historical record demonstrates a clear understanding of an "enumeration" that would contemplate an actual count and foreclose the use of estimates, the Capitation Clause merely suggests that the Framers understood "census" to mean the same thing, as founding-era dictionaries confirm. See, *e.g.*, Noah Webster, *A Compendious Dictionary to the English Language* 46 (1806) (defining "census" as "an enumeration of inhabitants, a register of people"); see also Census Undercount Adjustment: Basis for Decision, 45 Fed. Reg. 69,366, 69,371 (Oct. 20, 1980) (AR C01218) (stating that in the Bureau's view a "'census' is an official enumeration" and "not an estimate of the population").

3. The drafting history of the Census Clause is similarly unhelpful to appellees. First, the constitutional debates are hardly silent. Rather, they confirm the Framers' intent to require an actual count, and to eschew estimates, by indicating a preference for a "permanent and precise" standard, 1 *Records of the Federal Convention of 1787*, at 578 (M. Farrand ed., 1966), and by rejecting a "vague" rule that would turn on a mere "estimate" of wealth, *id.* at 561. Thus, when the Committee of Style added the words "actual enumeration" in place of the prior formulation of a "census," *id.* at 570-71, those words must have been seen as an important (but hardly surprising) clarification—and a vindication of the policy preferences expressly embraced in the debates.

Appellees seek refuge for their position in some stray language from *Nixon* v. *United States*, 506 U.S. 224, 231 (1993), but *Nixon* thoroughly condemns their approach. It is true, as appellees note, that *Nixon* says the courts "must presume that the Committee's reorganization or rephrasing accurately captured what the Framers meant in their unadorned language." *Id.* But that presumption is entirely consistent with Utah's position: that an "actual enumeration" was a clarification that the "census" called for in earlier drafts was to be based on an actual count rather than an estimate.[6]

C. Appellees Fail In Their Attempts To Shoehorn Imputation Into The Original Understanding.

Finally, acknowledging that an actual enumeration may "demand[] some form of individualized counting process,"

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[6] Appellees also ignore an alternative rationale offered by the Court in *Nixon*, which *clearly* forecloses their approach here. 506 U.S. at 231-32 (noting that treating the words added by the Committee of Style as "a mere 'cosmetic edit'" would "constrain us to say that the *second to last draft* would govern in every instance where the Committee of Style added an arguably substantive word," and that such an approach "is at odds with the fact that the Convention passed the Committee's version").

NC Br. 48, appellees argue that imputation still satisfies that requirement. These arguments are similarly misguided.

1. Appellees' assertion that the Framers never expressly foreclosed methods employed only as a "last resort" after an "exhaustive actual enumeration," US Br. 44; NC Br. 48, is both irrelevant and wrong. The notion that the specific method at issue "is one with which the framers were not familiar" is simply insignificant. *United States* v. *Classic*, 313 U.S. 299, 316 (1941). Thus, it may be that the Framers did not expressly condemn methods in the precise mold of imputation. But they did condemn estimation, and the constitutional language expresses their intent to reject all methods that have that effect.

In any event, the assertion that the Framers were unfamiliar with combining a statistical estimate with a partial enumeration, and meant to condemn only so-called "gross estimates," US Br. 45; NC Br. 48, is also inaccurate. During the founding era, Americans and Britons alike supplemented partial enumerations with partial estimates. And even in this context, they consistently used the term "enumeration" to distinguish the two methods. See Ut. Br. 47.

2. Moreover, appellees' proposed constitutional rule is the antithesis of the "permanent and precise" standard the Framers intended. The proposed inquiries into whether the Bureau's enumeration efforts are sufficiently "exhaustive," whether a particular estimate is "gross" rather than "fine," and whether an adjustment adequately advances some notion of "accuracy" are inherently imprecise. Thus, appellees' standard must be rejected because it would replace the "permanent" and "fixt" standard of an actual enumeration with an ever-changing rule to be sorted out by a debate among statisticians.

Appellees also miss the point in asserting that imputation only "mitigates rather than increases" the potential for manipulation in the actual enumeration. US Br. 23; NC Br.

50. Imputation undoubtedly does mask the effects of cut-backs in enumeration efforts, but that is precisely the problem. The discretion to choose among a range of methods of statistical adjustment provides cover for politicians who would otherwise be revealed as making politically motivated changes in the census.[7] See Ut. Br. 27-30.

Finally, appellees are mistaken in their suggestion that only hypothetical methods of statistical adjustment (and not imputation) open possibilities for manipulation. NC Br. 49. In designing imputation procedures, the Bureau has broad discretion to affect the nature and extent of its use. Such decisions may increase the apportionment count by only about 53,000, as in the 1990 census, by nearly 1.2 million, as in the 2000 census, JA 45, or by a much greater margin if the Bureau were to choose to cut back on its enumeration efforts.

The potential for manipulation of apportionment is perhaps most obvious after the census has been completed. At that point, the Bureau, the Secretary, and even the President are faced with the decision whether to utilize the imputation adjustment as calculated, or to limit the apportionment numbers they submit to the Clerk of the House to the actual count. See *Franklin*, 505 U.S. at 798 ("[T]here is no statute that rules out an instruction by the President to the Secretary to reform the census, even after the data are submitted to him"); *id.* at 815, n.13 (Stevens, J., concurring) (noting that "the Secretary may modify the census figures"). Such a decision would be even more politically charged than the current administration's decision to reject statistical adjustment for non-apportionment purposes. That fact alone raises the Framers' concerns about partisan manipulation.

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[7] In a purely *enumerative* census, the political motivations behind a proposal to cut back on follow-up visits would be easily discernible. But once statistical adjustments are introduced, the political motives for such a change may be masked by subjective disagreements among statisticians.

3. Appellees also err in their attempt to justify imputation on accuracy grounds. For one thing, the argument fails in its premise. The Framers well understood that the "real numbers [would] exceed, greatly, the official returns" from the actual enumeration, 31 *The Writings of George Washington* 329 (John C. Fitzpatrick ed., 1931) (emphasis added), and that "omissions" in the enumeration would be "very great," 8 *The Writings of Thomas Jefferson* 236 (Andrew A. Lipscomb ed., 1903) (emphasis added). Their prescription of an actual enumeration accepted that shortfall as the necessary price of a fixed, permanent apportionment standard. Thus, even if a statistical method could be shown to "move the census count closer to the actual population in each State," NC Br. 44, it still would not be a method of actual enumeration.

In any event, contrary to appellees' argument, the record below belies the unsupported speculation that imputation may improve accuracy. North Carolina is mistaken when it asserts that without imputation the Bureau will "knowingly disregard actual persons, and the census will have consciously identified *less* than the 'whole number of persons in each State.'" *Id.* This is demonstrably false for status and occupancy imputation, where the Bureau has no knowledge as to whether an imputed unit is occupied, or even whether it is a housing unit at all. Moreover, as explained in greater detail in Utah's opening brief, imputation's non-random method of estimation is more likely to produce an overcount than to correct for any undercount. Ut. Br. 28-29.

Even if imputation could be shown to improve numerical accuracy, the only relevant form of accuracy for apportionment purposes is distributive accuracy. On that point, the Bureau has acknowledged that it cannot show that imputation is an improvement over an actual count. JA 228. North Carolina speculates that imputation "*can* improve distributive accuracy" if it is used in states that "turn out to have comparatively low record-return or data-capture rates." NC Br. 43 n. 22. That speculation is both contradicted by the

Bureau's concession and completely unhelpful. The mere fact that some States may have "comparatively low record-return or data-capture rates" does not mean that imputation will improve distributive accuracy. Such low rates may not reflect an undercount, but rather a comparatively large number of unoccupied units, uncompleted construction, vacation homes, errors on the master address file, etc. If so, imputation will distort—not improve—distributive accuracy.

4. Finally, appellees' attempt to tie imputation's fate to the Bureau's use of data gathered from "proxies" (such as neighbors, landlords or postal workers) is misguided. Utah does not contend that enumerators must rely only on "personal observation," NC Br. 49, or "literally to count every head," US Br. 42. Rather, the standard drawn from the textual and historical record is that the Bureau must conduct an actual count, and may not substitute an estimate for such a count.

Thus, enumerators may rely on a range of information about the occupancy of a particular housing unit—on physical observation, on information provided by members of the household, or on information provided by third parties. What they may not do is to substitute a mere estimate for information specific to the housing unit in question. Thus, contrary to appellees' argument, the line between proxy data and imputation is not merely a difference in degrees of "evidentiary reliability." NC Br. 49. Rather, the line is a principled distinction between methods that rely on occupancy information specific to the unit in question and methods that do not. This is the difference between an "actual enumeration" and what the Bureau did here.

CONCLUSION

For the foregoing reasons, the Court should reverse the judgment of the district court.

Respectfully submitted,

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Supreme Court of the United States

UTAH, *et al.*,

Appellants,

v.

DONALD L. EVANS, SECRETARY OF COMMERCE, *et al.*,

Appellees.

ON APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF UTAH

BRIEF *AMICUS CURIAE* OF BRENNAN CENTER FOR JUSTICE AT NYU SCHOOL OF LAW IN SUPPORT OF APPELLEES

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Noah Webster, *American Dictionary of the English Language* (1828) 8

INTEREST OF THE *AMICUS CURIAE*

The Brennan Center for Justice at New York University School of Law unites thinkers and advocates in pursuit of a vision of inclusive and effective democracy. The Center's mission is to develop and implement an innovative, nonpartisan agenda of scholarship, public education, and legal action that promotes equality and human dignity, while safeguarding fundamental freedoms. In recognition of the ideal of equal representation expressed in Justice William J. Brennan, Jr.'s opinions for the Court in numerous voting rights cases, including *Baker v. Carr*, 369 U.S. 186 (1962), the Center has previously filed briefs *amicus curiae* with this Court in *United States Department of Commerce v. United States House of Representatives* and *Hunt v. Cromartie*. The Center takes an interest in this case because the decennial counting of the population provides the data critical to ensuring that groups and states achieve an equal voice through apportionment of the House of Representatives. With this brief *amicus curiae* in support of Appellees, the Center argues that the goal of equal and accurate representation is synonymous with the constitutional command of an "actual enumeration."[1] *Amicus* urges this Court to reject an interpretation of the Constitution that forever precludes the Census Bureau from using all tools at its disposal accurately to count the population and that therefore ensures that systematic biases in the headcount will continue to be reflected through misrepresentation in Congress.

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[1] *Amicus* files this brief with the consent of all parties. Letters of consent are on file with this Court. Pursuant to Supreme Court Rule 37.6, *Amicus* states that no counsel for a party authored this brief in whole or in part; and that no person or entity, other than *Amicus*, contributed monetarily to the preparation and submission of this brief.

INTRODUCTION AND SUMMARY OF ARGUMENT

At the beginning of each decade since the ratification of the Constitution, a national census has described the growth and evolution of the changing American population. As the population has changed, so have the tools used to measure it. In the first censuses, marshals riding on horseback between distant houses tabulated whole households on forms of their own making, used separate forms to tabulate slaves and "free inhabitants," registered race as "White" or "Colored", and categorized people as "deaf and dumb, blind, insane, idiotic, a pauper or a convict." Margo J. Anderson, *The American Census: A Social History* 14, 37, 44 (1988). In so many ways, the 2000 census would be unrecognizable to those original marshals. The thread that connects the censuses of then and now is a single-minded dedication to achieving an accurate count of the population.

The use of imputation in the last five censuses is just one of many techniques Congress has authorized to increase the accuracy of the count. After performing a "Dress Rehearsal" for the 2000 census and updating the hundreds of millions of addresses in its Master Address File, the Census Bureau embarked on a complicated and continuously evolving strategy of counting every member of the U.S. population, living at home or abroad, in traditional housing or on the streets, or in one of dozens of special circumstances for which the Census Bureau has a particular operation. *See* U.S. Census Bureau, *2000 Operational Plan* (2000), *available at* http://www.census.gov/dmd/www/pdf/Operational2000.pdf. In addition to using the mail to deliver and to retrieve census forms (as has been done since 1970), the Bureau made Census 2000 forms available in certain public locations, and on the World Wide

Web, and had enumerators return up to six times to non-responding residences. For some, responses were taken over the phone and, for the first time, through the internet. Most forms in the 2000 census were then counted by computers with state-of-the-art handwriting recognition technology, and "matching software" was employed to eliminate the millions of duplicate responses that the census received. *See* Pub. Info. Office, U.S. Census Bureau, *Digital "Capture" of Forms* (last revised Jan. 28, 2002), *at* http://www.census.gov/dmd/www/digital2.html; Pub. Info. Office, U.S. Census Bureau, *"Matching" Software* (last revised Jan. 28, 2002), *at* http://www.census.gov/dmd/www/matching2.html.

For addresses for which the census had no information or incomplete information as to the household's size, occupancy, or status, values were sometimes imputed based on information gained from nearby and similar households. At its core, the imputation process was much like the procedures followed in the earliest censuses, when a neighbor would give information about the house next door if its occupant was nowhere to be found, heads of households would give information about all who dwelled within, and slaveowners would estimate the number of slaves on their plantations. The various forms of imputation used in the 2000 census and its predecessors represent only the most modern attempt to use information gained from one respondent to better enumerate the entire population.

For the two states competing for the last seat in the House of Representatives, 0.25% of Utah's and 0.42% of North Carolina's population was imputed. *See* Memorandum from Donna Kostanich, Assistant Division Chief, Sampling and Estimation, Bureau of the Census, to Howard Hogan, Chief, Decennial Statistical Studies Div., Bureau of the Census 14 (Feb. 28, 2001), *available at* http://www.census.gov/dmd/www/pdf/Fr17.pdf. Neither

state exhibited a particularly high rate of imputation. The 1,172,144 people imputed into the 2000 census represent only 0.42% of the total U.S. population. The percent of each state's population that was imputed varied from a high of 1.12% (New Mexico) to a low of 0.17% (Iowa). *Id.* Although both states competing for the last seat in the House exhibited relatively low rates of imputation, the difference between the two was sufficient to award the additional representative to North Carolina instead of Utah. No one could have predicted that imputation would make the difference. In fact, in the 1990 census, North Carolina's rate of imputation (0.01%) was among the lowest, while Utah's (0.11%) was among the highest. *See id.*

On the eve of congressional primary elections in the already redrawn House districts in the two states, Appellants now seek from this Court a ruling that the reapportionment data for the 2000 census and its four predecessors was illegally and unconstitutionally constructed. Reading the apportionment clauses of Article I, section 2, and the Fourteenth Amendment, U.S. Const. art I, § 2, cl. 3; *id.* amend. XIV, § 2, to prevent the use of any statistical methods using the headcount data to achieve a more accurate count of the population, Appellants would have this Court read the words "actual enumeration" and "respective numbers" to turn back the clock at least 40 years on procedures, such as imputation, used to construct the apportionment totals. *See* U.S. Census Bureau, *1960 Censuses of Population and Housing: Procedural History* 81-84 (1966) (describing imputation in 1960 census). In fact, Appellants' interpretation runs counter to census practices established as early as 1790, as its notion of a headcount that "reckons singly" the population mischaracterizes the practice of even the first census.

For Appellants to succeed, not only do they need to reread "actual enumeration" as a headcount, they must also

convince this Court that "respective numbers" can actually mean a knowingly inaccurate count of a state's population and that apportionment "according to" such numbers cannot benefit from the added information imputation provides. Moreover, they must prove that Congress's powers to direct the "manner" of making the actual enumeration and to enforce the Fourteenth Amendment categorically prohibit it from using imputation in any way to calculate the apportionment totals. What Appellants seek is both unprecedented and inconsistent with the original understanding of the Constitution.

This Court has never read the Constitution to cabin Congress in its efforts to achieve an accurate count, and it has never ordered a recalculation of apportionment totals. This Court has required only that the "Secretary's conduct of the census be 'consistent with the constitutional language and constitutional goal of equal representation'" and that it "bear only a reasonable relationship to the accomplishment of an actual enumeration of the population, keeping in mind the constitutional purpose of the census." *Wisconsin v. New York*, 517 U.S. 1, 19 (1996) (citing *Franklin v. Massachusetts*, 505 U.S. 788, 804 (1992)). Describing the Constitution as "vest[ing] Congress with virtually unlimited discretion in conducting the decennial 'actual enumeration,'" *id.* at 19 (footnote omitted), this Court has rightly accorded Congress and the Census Bureau broad deference based on the complexity, enormity, and fast-paced challenges that each census presents. This deference is also particularly appropriate in this case given the *post hoc* nature of the challenge to census procedures and the havoc a decision in Appellants' favor would wreak in North Carolina's upcoming congressional elections.

Appellants' reading is also inconsistent with the original understanding of the Constitution. By choosing the words "actual enumeration" the Framers sought merely to

ensure that apportionment totals would be based on a census. Indeed, in limiting the taxing power, Article I itself uses the words "census or enumeration" together, in section 9, to further clarify that the two concepts are identical. U.S. Const. art. I, § 9, cl. 4. Finally, the fact that the Constitution describes the "actual enumeration" as something that is "made" rather than a process that is conducted removes all doubt that the phrase somehow restricts Congress in the manner it can direct to achieve the apportionment totals.

In constitutionally linking apportionment to an accurate count of the population, instead of leaving the decision up to future Congresses, the Framers sought to avoid political manipulation and a system of rotten boroughs such as that experienced under English control. By using the phrase "actual enumeration," the Framers rejected conjectures and estimates based on data unrelated to a census. They did not seek to hamstring future Congresses from using all the tools at their disposal to achieve as accurate a count of each state's population as possible.

ARGUMENT

I. The Constitution Affirmatively Encourages, Rather Than Prevents, the Use of Imputation to Improve the Accuracy of State Population Totals Used for Congressional Apportionment.

A. The Text and Structure of the Constitution Reject the Notion That Congress Must Apportion Representatives Based on Inaccurate Data.

The requirement in the Census Clause of Article I, Section 2, as amended by the Fourteenth Amendment, that "Representatives and direct Taxes shall be apportioned

among the several States . . . according to their respective Numbers," does not prevent the census from using methods, such as imputation, that will make such "Numbers" more accurate. The mandate of an "actual enumeration," which produces the numbers employed to determine apportionment, merely requires the taking of a census, nothing more. The use of supplementary statistical methods, such as imputation, to improve the accuracy of the information garnered from census forms and enumerator interviews is true to both the letter and spirit of the Census Clause. Congress's authority under Article I, section 2, to determine the "manner" of "mak[ing]" the enumeration and its authority to enforce section 2 of the Fourteenth Amendment include the power to authorize imputation to fulfill the constitutional goal of equal representation.

Appellants' restrictive reading of the phrase "actual enumeration" as limited to a particular process of counting heads is inconsistent with the structure and text of the Constitution. To begin with the very sentence in which the words appear, the "actual enumeration" is a product that is "made," not a process that is conducted. The enumeration represents achievement of a specific goal: identification of the "respective Numbers" of the states. In "direct[ing]" the "manner" of making the "actual enumeration," Congress would be derelict in its constitutional duty if it adopted a method that it knows will misrepresent the respective number of people in each state. At the very least, the Constitution does not *obligate* Congress, as Appellants suggest, to conduct the census and to create the enumeration in such a way that apportionment will necessarily fail to be "according to [the states'] respective numbers."

Even conceding for the moment that "actual enumeration" refers to a process synonymous with a "headcount," the requirement that apportionment be made "according to" the "actual enumeration" does not prevent

the use of imputation to supplement and to refine the headcount numbers. The Clause does not require a one-to-one ratio of "enumerated population" to "number of representatives."[2] It requires merely that apportionment "agree with, correspond with or be suitable to," the respective numbers derived from the actual enumeration. Noah Webster, *American Dictionary of the English Language* (1828) (defining "according"); *see also Dep't of Commerce v. Montana*, 503 U.S. 442, 457 (1992) ("[T]he Government acknowledges that Congress has a judicially enforceable obligation to select an apportionment plan that is *related to* population."). It is undisputed that the size and location of the imputed population in the 2000 census are based on information acquired from enumerator interviews—that the apportionment totals using imputation, at the very least, "correspond with" the totals if imputed persons were subtracted.

Even if the Committee on Style's eventual choice of the words "actual enumeration" indicated a process, it did not mean anything more specific than conducting a census that counts each state's population. The Constitution itself, in Article I, section 9, uses the words together stating that "No . . . Tax shall be laid, unless in Proportion to the Census *or* Enumeration herein before directed to be taken" (emphasis added), suggesting that a rigid reading of the earlier phrasing in section 2 would be unwarranted. The Federalist Papers repeat the Census Clause almost word for word, but replace "actual enumeration" with the word "census" and whenever discussing the clause use the word census instead of enumeration. *See, e.g., The Federalist No.*

[2] Indeed, such a correlation would be impossible. Because the Constitution guaranteed even the most sparsely populated states at least one representative and because every state's population was not perfectly divisible by 30,000 (the original requirement for each seat in Congress), the relationship of people to seats was never one-to-one.

54, at 336 (James Madison) (Clinton Rossiter ed., 1961); *The Federalist No.* 55, at 343 (James Madison) (Clinton Rossiter ed., 1961); *The Federalist No.* 58, at 356 (James Madison) (Clinton Rossiter ed., 1961). Earlier drafts of this section of the Constitution, which used the word census, were consistent with this understanding.[3] If anything, the eventual choice of "actual enumeration" reflects views of the time, when the word "census" had a pejorative connotation, deriving from both the biblical story of the sin of David in numbering the people and the Latin link between the words census and censor, which was the Roman officer who "censured immoral behavior." Patricia Cline Cohen, *A Calculating People: The Spread of Numeracy in Early America* 35 (1999). As one historian posits, "this perhaps explains why English officials usually preferred to avoid the word 'census' and instead to talk about 'numberings' of the people." *Id.*

[3] *See* 1 *The Records of the Federal Convention of 1787*, at 589-90 (M. Farrand ed., 1966) [hereinafter Farrand]. An earlier version of this section read:

> Provided always that representation ought to be proportioned according to direct Taxation and in order to ascertain the alteration in the direct Taxation which may be required from time to time by the changes in the relative circumstances of the States — Resolved that a Census be taken within six years from the first meeting of the Legislature of the United States and once within the term of every Ten years afterwards of all the inhabitants of the United States in the manner and according to the ratio recommended by Congress . . . .

Id. at 590-91.

B. The Framers Did Not Intend the Census Clause to Restrict Congress's Ability to Achieve an Accurate Count of Each State's "Respective Numbers."

The Framers' intent behind the Census Clause was to achieve as accurate a count of each state's population as possible, not to freeze in 1790 the methods Congress could consider for a census 210 years later. In all of the debate over the Census Clause, it is curious to note the complete absence of any suggestion that only a certain method of achieving the actual enumeration would be permissible. Only through a selective reading of the constitutional debates and statements of the Framers can Appellants arrive at the conclusion that Congress must accept an inaccurate headcount as the basis of apportionment.

Amicus agrees with Appellants' suggestion that the Framers "fixed" a formula for apportionment. However, Appellants then read into this choice of a constitutionally prescribed apportionment formula a fixed standard for creating the "actual enumeration." The evidence from the convention and contemporaneous historical period argues against such a reading.

The debate over what later came to be Article I, Section 2, focused in large part on whether the Constitution should specify the basis for apportionment or whether each Congress could decide the apportionment formula anew. *See* 1 Farrand, *supra*, at 582-92. Quoting the concurrence in *Dep't of Commerce v. United States House of Representatives*, 525 U.S. 316, 344 (1999) (Scalia, J., concurring), Appellants note that the Framers feared leaving the basis of apportionment up to Congress because of the risk of political manipulation. Appellants' Br. at 47. However, by specifying that the census or "actual enumeration" should form the basis of apportionment, the Framers sought to reject the use of manipulable alternatives

to a census– namely, wealth, conjecture, or population estimates unrelated to a census–not alternative methods of conducting the census. Their choice of census-based population numbers as the materiel for apportionment totals derived not from a zeal for headcounts, but from a desire to have apportionment based on as fair and accurate a measure of population as possible.

An examination of the rejected alternatives for apportionment reveals the Framers' intent in adopting apportionment according to an "actual enumeration." First, the use of wealth was rejected not merely because it would require an estimate, as Appellants note, *see* Appellants' Br. at 42, but because it would be impossible to administer and because population itself could be used as a proxy for wealth. *See* Hyman Alterman, *Counting People: The Census in History* 184-85 (1969). The Framers considered wealth as a plausible basis for representation because they assumed that the metric used for apportionment would be the same as that used for taxation–taxation and representation being intertwined from the beginning of the Revolution until the final form of Article I, section 2 ("Representatives *and* direct taxes shall be apportioned among the several States . . . according to their respective numbers . . . ."). *See* 1 Farrand, *supra*, at 562 (stating that "taxation and Representation ought to go together"). The choice of population as the basis for representation and taxation derived, in large part, from the Framers' belief that population was, in fact, a *good estimate* of the wealth of a state.[4] The rejection of wealth in favor of population as the

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[4] *See* 1 Farrand, *supra*, at 593 ("Dr. Johnson, thought that wealth and population were the true, equitable rule of representation; but he conceived that these two principles resolved themselves into one; population being the best measure of wealth."); *id.* at 587 ("Mr. Ghorum. supported the propriety of establishing numbers as the rule. He said that in Massts. estimates had been taken in the different towns, and that persons had been curious enough to compare these estimates

sole criterion for calculating taxation and representation had little to do with the estimate-like nature of some possible wealth measure and much more to do with the Framers' determination that a census could serve as an accurate measure for both wealth and population. *See id.* at 579 (quoting Williamson's motion to consider "that in order to ascertain the alterations that may happen in the population & wealth of the several States, a census shall be taken") (internal quotation marks omitted). Moreover, the use of population as the formula for apportionment of both taxation and representation provided its own internal safeguard for avoiding manipulation. The requirement served to cabin manipulative tendencies by imposing costs in the form of taxation on any schemes to unfairly increase representation. *See The Federalist No.* 54, at 340 (James Madison) (Clinton Rossiter, ed. 1961).

Second, the Framers' choice of an "actual enumeration" distinguished future apportionment from the pure conjecture used to apportion the first Congress. *See* 1 Farrand, *supra*, at 578 ("[Mason] did not object to the conjectural ratio which was to prevail at the outset . . . ."); *id.* at 579 ("[T]he ratio fixt for the 1st. meeting was a mere conjecture."). Immediately following the Census Clause, the Constitution specifies how many representatives each state would have "until such enumeration shall be made." In choosing an actual enumeration as a basis for

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with the respective numbers of people; and it had been found . . . that the most exact proportion prevailed between numbers & property."); *id.* at 585 ("[Madison] could not agree that any substantial objection lay agst. fixing numbers for the perpetual standard of Representation. It was said that Representation & taxation were to go together; that taxation & wealth ought to go together, that population and wealth were not measures of each other. . . . He would admit that in no situation numbers of inhabitants were an accurate measure of wealth. He contended however that in the U. States it was sufficiently so for the object in contemplation.").

apportionment, the Framers ensured that apportionment of future congresses would not be the product of similar guesswork. The Framers knew that the conjectural, initial apportionment misrepresented the population of the states. *See id.* at 560 ("The Report is little more than a guess."). Indeed, to get the smaller states on board such initial misrepresentation was necessary. *See* Alterman, *supra*, at 189. This temporary solution or any conjectures like it would not become regularized, however. All future apportionment would be done according to the census with the goal of equal representation as its touchstone. George Mason's position entailed much more than the redacted quote Appellants cite. *See* Appellants' Br. at 4. According to Madison, "[Mason] did not object to the conjectural ratio which was to prevail in the outset; but considered a Revision from time to time according to some permanent & precise standard *as essential to ye. fair representation required in the 1st. branch.*" 1 Farrand, *supra*, at 578 (emphasis added). Like the other Framers, Mason viewed the governing goal of what would later become Article 1, section 2, to be "fair representation." The "actual enumeration" Congress would direct to be made was a vehicle for achieving this fair representation.

Finally, in specifying that the House would be apportioned according to an "actual enumeration" the Framers rejected estimates based on data other than a census. Such estimates were common throughout the colonies, often derived from tax lists, militia lists, or birth and death records. Thomas Jefferson's estimate of Virginia's population based on poll tax lists was one of the most prominent. *See* Alterman, *supra*, at 164-69; James H. Cassedy, *Demography in Early America: Beginnings of the Statistical Mind, 1600-1800*, at 225-41 (1969). The requirement of a national census provided a basis for apportionment totals that ensured distributive accuracy among the states and a consistent national system for

measuring population. This was in stark contrast to the practice under the Second Continental Congress and Articles of Confederation, when each state was responsible for its own census to apportion the costs of war. Few colonies (eventually states) rose to the task. *See id.* at 192-93. The cited statements from the Founders, *see* Appellants' Br. at 41-45, merely restate what is not disputed here–that they understood "census," "enumeration" and "returns" to mean something different than an "estimate" or "conjecture."[5] Appellants fail in their attempts to connect the imputation process from the last five censuses to the Founders' conception of "estimate" and "conjecture."

C. The History of Interpretations and Operations Under the Census Clause Supports the Use of Imputation to Achieve Accurate Apportionment Totals.

From the first census to the most recent one, Congress and census administrators have viewed accuracy and fair representation as its governing principles. To those ends, every census has departed from the rigid definition of

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[5] Although the Framers may have differentiated between the two, apparently those compiling the numbers from the 1810 census did not think the Census Clause prohibited estimates. The "Memoranda and Errata of the Census of the United States for the year 1810" describe how an estimate was used to remedy errors in the physical returns:

> An accidental examination of some of the returns led to the detection of material errors in the computation of the items of which their aggregates were formed. These were so great in one instance, to wit: North Carolina, as to cause the return to be transmitted to the marshal of that district for revision. It has been printed agreeably to his second *estimate*.

U.S. Dep't of State, *Aggregate Amount of Each Description of Persons within the United States of America and the Territories thereof, Agreeably to Actual Enumeration Made According to the Law, in the Year 1810* (1811), *reprinted in* U.S. Census Office, *Persons within the United States in 1810*, at 90 (1911) (emphasis added).

"actual enumeration" that Appellants propose here. The imputation processes conducted in the last five censuses are perfectly in line with procedures adopted in the previous 17.

To begin with, Appellants' conception of "actual enumeration" does not comport with the practice conducted in the first few censuses. Appellants define the phrase as "counting 'singly,' 'separately,' 'number by number,' 'distinctly.'" Appellants' Br. at 36 (quoting *Dep't of Commerce v. United States House of Representatives*, 525 U.S. 316, 347 (1999) (Scalia, J., concurring)). It is difficult to reconcile this definition and emphasis on singularity with the well-established practice in the first five censuses of counting households together. Until 1840, the marshals would count families together–putting only one name down on their makeshift census tabulation sheets and an aggregate number of household members of various categories. *See* Margo J. Anderson, *Encyclopedia of the U.S. Census* xi (2000); *see also* Margo J. Anderson, *The U.S. Census: A Social History* 39 (1988) (noting that the 1850 census identified slaves only by aggregate numbers according to slave owner, not by their own names). From the very beginning, the enumeration was not performed "separately" at all. Indeed, by relying on household heads to present information regarding the number and characteristics of their family members, tenants, and slaves, the census was never conducted on an individualized basis. The process of counting the population always involved information supplied by someone other than the enumerated person. Even today, the head of a household fills out the form on behalf of all who dwell there. The census does not require each person to be personally or singly enumerated.

The inconsistency of Appellants' definition with the historic practice of using a neighbor to give information on others in their neighborhood is particularly striking in this

case.[6] When enumerators confront a vacant household or someone who refuses to open a door, they do not then delete the record from the census or write in a zero. Rather, they use all means at their disposal to find out how many people live in the dwelling. Even the first Census Act embodied this commitment to use all information sources to make an incomplete enumeration "actual." It provided that enumerators would count absent people in the place where they normally lived. *See* Act of Mar. 1, 1790, ch. 2, § 5, 1 Stat. 101, 103 ("[E]very person occasionally absent at the time of the enumeration [shall be counted] as belonging to that place in which he usually resides in the United States."). In constructing even the first actual enumeration, therefore, the enumerator was required to count what Appellant describes as "phantom" persons. Appellants' Br. at 8-9.

The imputation process is constitutionally equivalent to these other established processes of using information from one individual to enumerate another. As Appellants accurately describe the process, for each imputation in the census there exists a corresponding "donor," which is "the estimated unit's geographically closest neighbor of the same type." Appellants' Br. at 7. Depending on its location in the data array of similar households, known as the hot-deck, the

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[6] The Census Act of 1919 described the duty of enumerators to use neighbors to get information from nearby housing units in the following way:

> It shall be the duty of each enumerator to visit personally each dwelling house in his subdivision, and each family therein . . . . [I]n case no person shall be found at the usual place of abode of such family . . . then it shall be lawful for the enumerator to obtain the required information as nearly as may be practicable from the family or families or person or persons living nearest to such place of abode who may be competent to answer such inquiries.

Act of Mar. 3, 1919, ch. 96, § 12, 40 Stat. 1291, 1296.

"donor" was either a vacant or occupied housing unit. For each case of imputation, however, the census used observed data to impute values for unobserved individuals, households, or addresses. For each class of imputations, the census needed to make a choice: should it ignore the information describing the occupancy characteristics of the unit or should it impute a value likely to make the aggregate apportionment totals more accurate? The judgment calls it made in favor of imputation were not arbitrary or capricious, but based on 40 years' experience using imputation in the apportionment totals and on a careful assessment of the available scientific evidence.[7]

Although each class of imputations (household size, occupancy, and status) raises distinct issues, all imputations in the 2000 census were based on information garnered through the physical enumeration or headcount process.

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[7] The scientific literature in support of imputation to achieve accuracy and reduce bias is voluminous. *See, e.g.*, S. Obeng-Manu Gyimah, *Missing Data in Quantitative Social Research* 10 (Population Studies Ctr., Univ. of W. Ontario, Discussion Paper No. 01-14, 2001), *at* http://www.ssc.uwo.ca/sociology/popstudies/dp/dp01-14.pdf (noting that the "hot deck imputation procedure [is] predominantly used by census bureaus the world over"); James W. McNally, *Generating Hot Deck Imputation Estimates: Using SAS for Simple and Multiple Imputation Allocation Routines* 2-3 (Population Studies & Training Ctr., Brown Univ., Working Paper #97-12, 1997), *at* http://www.pstc.brown.edu /papers/ wp-1997/97-12wp.html (describing the advantages of hot deck imputation, particularly with regard to mitigating non-response bias); Barry L. Ford, *An Overview of Hot-Deck Procedures*, *in* 2 *Incomplete Data in Sample Surveys* 185, 187-89 (William G. Madow, Ingram Olkin & Donald B. Rubin, eds., 1983) (describing advantages and disadvantages of using hot-deck imputation to avoid non-response bias); Innis G. Sande, *Hot-Deck Imputation Procedures*, *in* 3 *Incomplete Data in Sample Surveys*, *supra*, at 339 (same); *Discussion*, 3 *Incomplete Data in Sample Surveys*, *supra*, at 353, (quoting Frederick Scheuren of the Office of Research and Statistics of the Social Security Administration as saying "hot deck is a powerful tool in survey practice. . . . With large multipurpose surveys, the hot deck may be the best technique for use in imputing for item nonresponse.").

Household size imputation, which contributed the largest share (495,600 or 42%) of imputed persons to the 2000 census, is functionally similar to established and historic practices of asking neighbors for information on nonresponding housing units. *See* Fay F. Nash, U.S. Census Bureau, *ESCAP II: Analysis of Census Imputations* 2, 4 (Executive Steering Comm. for A.C.E. Policy II Report No. 21, 2001), *available at* http://www.census.gov/dmd/www/pdf/Report21.PDF (describing imputation process and results for the 2000 census). For this class of imputations, the Census Bureau records indicate that the unit is occupied, but for one reason or another, the number of occupants is unknown. Instead of recording the unit as vacant or nonexistent (*i.e.*, deleting the address or imputing a zero value that the Bureau knows to be incorrect), the Bureau uses information from the donor to calculate what it believes to be the most likely size of the household.

Appellants would have the census follow an alternative course. Based on their interpretation of the Census Clause, Appellants would have the census enumerators hear the voices behind a locked door, shut their ears, and deliberately pencil in a zero for the household. In other words, they would actively prevent the enumeration from being "actual," and instead have the census abide by a rigid rule that can be summarized only as "out of sight and out of mind." Even the most narrow reading of "actual enumeration" cannot possibly impose a *duty* on the Census Bureau to create an inaccuracy it knows can be prevented.

The occupancy and status imputations present somewhat different issues, but the constitutional obligation to make the enumeration as actual as possible remains just as strong. Occupancy imputations, which comprised 22% of all imputations and contributed 260,652 people to the 2000 census, were made when the Census Bureau could not verify that a housing unit was occupied. Status imputations, which

comprised 36% of all imputations and contributed 415,892 people to the 2000 census, were made when the Bureau had insufficient information about whether an "address represented a valid, non-duplicating housing unit." *See id.* at 1. The overwhelming majority of such imputations were the result of measures used to combat errors in the compilation of the Decennial Master Address File or in enumerator-completed questionnaires. *See id.* at 2-4 (describing the chain of events that led to status and occupancy enumerations); *cf. supra* note 5 (describing somewhat analogous processes used in 1810 census to remedy defects in physical returns).

As could be expected with any attempt to enumerate 280 million people in just a few short months, the 2000 census confronted administrative snafus, address file or enumerator errors, census forms crossing each other in the mail, late returns, blank returns submitted, duplicate returns, and a host of other expected, as well as unexpected, processing errors. In these cases, based on their experience, census administrators knew that a large number of these errors misrepresented *bona fide*, occupied housing units. Once again, they were confronted with the choice of doing nothing and acquiescing to erroneous enumerations and non-enumerations or using the tools at their disposal to correct the errors they suspected in the mailback, enumerator follow-up, and other procedures.

In a case of occupancy imputation, for example, an enumerator's count might show the housing unit as vacant, although person data (*e.g.*, number and race) are included on the questionnaire. The census used the imputation process to reconcile this conflict rather than discarding the data. Similarly, status imputation was often used when data records did not correspond to census ID numbers–for example, when census enumerators in the field added housing units not in the Master Address File. In fact, three

quarters of the housing units imputed through status imputation were added by enumerators or the respondents themselves. *See* Nash, *supra*, at 2. Appellants' suggestion that the imputed housing units were "phantoms" simply misrepresents what is involved in the imputation process.

Each of the three categories of imputation represents an established scientific method for achieving a more accurate count of each state's "respective numbers." Either the imputation process helps achieve an "actual enumeration" or, at the very least, it supplements the "actual enumeration" such that representatives can be constitutionally apportioned "according to" the imputation-enhanced population totals. In either case, the plan used in Census 2000, like its five predecessors, was well within the bounds of acceptable methods used to apportion Congress.

II. The Court Should Accord Its Traditional Deference to Congress in Directing the "Manner" of the Census.

Having always recognized the complexity in counting a population of hundreds of millions, this Court has never used the Census Clause to strike down a congressional decision to improve the accuracy of the apportionment totals. In an uninterrupted line of cases interpreting the Clause, this Court has wisely decided to avoid substituting its judgment for that of Congress and the Census Bureau in determining the manner of the census. *See Wisconsin v. New York*, 517 U.S. 1 (1996); *Franklin v. Massachusetts*, 505 U.S. 788 (1992); *Dep't of Commerce v. Montana*, 503 U.S. 442 (1992). The same deference is appropriate here.

Article I, section 2, clause 3 gives Congress broad power to choose the means of ascertaining an accurate count by specifying that the "actual enumeration shall be made . . .

in such Manner as they shall by Law direct." Section 5 of the Fourteenth Amendment adds to that power by giving Congress the "power to enforce, by appropriate legislation" the amended apportionment provisions of section 2 of that amendment. Eliminating the assignment of partial personhood to slaves in the three-fifths compromise of the original Constitution, section 2 does not speak of the census or actual enumeration, but mentions only apportionment "according to [the states'] respective numbers." Along with the Equal Protection Clause that precedes it, Section 2 further reinforces the goals of equal and fair representation based on an accurate count of the "whole number of persons in each state" and reemphasizes Congress's broad powers to achieve those goals.[8]

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[8] The debates surrounding the adoption of the Fourteenth Amendment make clear its emphasis on representation of the whole population. *See* Cong. Globe, 39th Cong., 1st Sess. 2766-67 (1866) (statements of Sen. Howard), *reprinted in The Reconstruction Amendments' Debates: The Legislative History and Contemporary Debates In Congress on the 13th, 14th, and 15th Amendments* 220-21 (Alfred Avins ed., 1967) (discussing a predecessor to the Fourteenth Amendment containing the same "counting" phrase); *id.* at 220 ("Its basis of representation is numbers, whether the numbers be white or black; that is, the whole population except untaxed Indians and persons excluded by the State laws for rebellion or other crime."); *id.* at 221 ("The committee adopted numbers as the most just and satisfactory basis, and this is the principle upon which the Constitution itself was originally framed, that the basis of representation should depend upon numbers; and such, I think, after all, is the safest and most secure principle upon which the Government can rest. Numbers, not voters; numbers, not property; this is the theory of the Constitution."); *id.* ("And, sir, the true basis of representation is the whole population. It is not property, it is not education, for great abuses would arise from the adoption of one or the other of these two tests. Experience has shown that numbers and numbers only is the only true and safe basis; while nothing is clearer than that property qualifications and educational qualifications have an inevitable aristocratic tendency—a thing to be avoided.").

This Court has described the Constitution as "vest[ing] Congress with virtually unlimited discretion in conducting the decennial 'actual enumeration.'" *Wisconsin*, 517 U.S. at 19 (footnote omitted). "[S]o long as the Secretary's conduct of the census is 'consistent with the constitutional language and constitutional goal of equal representation,' it is within the limits of the Constitution." *Id.* (quoting *Franklin*, 505 U.S. at 804). Through the Census Act, Congress has delegated the power to the Secretary of Commerce to "take a decennial census of [the] population . . . in such form and content as he may determine . . . ." 13 U.S.C. § 141(a) (2001). In defending choices concerning the manner of conducting the census, the Secretary must demonstrate that his decisions "bear only a reasonable relationship to the accomplishment of an actual enumeration of the population, keeping in mind the constitutional purpose of the census." *Wisconsin*, 517 U.S. at 19. The use of imputation in the 2000 census easily passes this deferential standard of review.

Appellants all but concede the consistency of imputation with the "constitutional goal of equal representation." Hoping to sweep under the rug this constitutional goal and the precedent that recognizes it, Appellants focus their argument instead on identifying alternative values to equality and accuracy, such as the importance of headcounts over estimations and the avoidance of political manipulation.

The false dichotomy between headcounts and imputation-aided enumerations was demonstrated above. To reiterate, the Constitution allows for imputations in the "ma[king]" of the "actual enumeration." Alternatively, even if one adopts a restrictive reading of "actual enumeration," imputation can be used to calculate the "respective numbers" of people in the several states. In any event, the broad congressional power to determine the "manner" of

conducting the "actual enumeration" suggests that the Framers recognized the need to unshackle Congress from any constitutionally enshrined method for taking the census. *Cf. Bush v. Gore*, 531 U.S. 98, 113 (2000) (Rehnquist, C.J., concurring) ("Art. II, § 1, cl. 2 [which provides that 'Each State shall appoint, in such *Manner* as the Legislature thereof may direct, a Number of Electors'], 'convey[s] the broadest power of determination' and 'leaves it to the legislature exclusively to define the method' of appointment." (quoting *McPherson v. Blacker*, 146 U.S. 1, 27 (1892)) (emphasis added)).

Although Appellants cannot find evidence of political manipulation through imputation in any of the last five censuses, they raise the spectre of such manipulation, and the Framers' fear of it, to confine the "manner" Congress may choose for the "actual enumeration." As mentioned above, the Framers made the political manipulation argument solely to justify fixing the apportionment process in the Constitution, not to prescribe the conduct of the census. Appellants' argument fails for a further reason, however, because imputation is less susceptible to manipulation than both the "estimates" Appellants confuse with it, and the headcount method they place on a constitutional pedestal.

As an initial matter, the last-minute nature of Appellants' expression of concern for imputation and the absence of any prior objection to the process reveal much about the potential for manipulation. Indeed, Appellants Senators Bennett and Hatch appear never to have used their legislative power even to suggest a halt to the use of imputation. Why Appellants discovered only a few months ago that the past 40 years of censuses and related apportionments have been unconstitutional is no mystery: *ex post* calculations indicate that subtracting imputations

will be enough to shift a congressional seat from North Carolina to Utah in the next Congress.

It cannot be stressed enough, however, that no one foresaw that North Carolina and Utah would be competing for the last seat or that imputation might make the difference. Soraya Sarhaddi Nelson, *Census May Net State Only 1 New House Seat*, L.A. Times, May 21, 2000, at A1 (presenting table of predicted changes in House delegations that includes neither Utah nor North Carolina among states likely to change); Rene Sanchez, *Population Increase Highest in Western States*, Wash. Post, Jan. 1, 1998, at A14 (not mentioning Utah and North Carolina in the 15 states whose House delegations might change with the 2000 census). Indeed, as noted previously, the situation in 1990 was just the reverse: Utah had a higher rate of imputation than North Carolina. *See* Memorandum from Donna Kostanich to Howard Hogan, *supra*, at 14 (noting North Carolina's 1990 rate of imputation (0.01%) was among the lowest, while Utah's (0.11%) was among the highest). Although every census presents new problems and issues, no one suggests that the imputation dynamics for the 2000 census were atypical. The rate of imputation was consistent with rates in 1970 and 1980, while 1990 remains somewhat of an outlier. (Hogan Decl. ¶¶ 52-57 J.A. 273-75.) However, like previous censuses, the partisan, regional, or state beneficiaries of the imputation process have not been consistent or predictable.

This lack of consistent beneficiaries and predictability are two features of imputation that distinguish it from statistical sampling as well as from the myriad "estimates" that were used for calculating population at the founding. Other key features constraining imputation-based manipulation are the centrality of a publicly available Decennial Master Address File derived from official sources (such as the Post Office) to the process and the use of the

"nearest neighbor" (*i.e.*, a geographic constraint) to attain a donor unit from the "hot-deck." Finally, the scientific and advisory boards that oversee the use of imputation in the census and the exhaustive public disclosure, comment, and criticism of each aspect of the census operational plan ensure that the method used will be one arrived at with significant input from the scientific community. *See* Kenneth Prewitt, *The U.S. Decennial Census: Political Questions, Scientific Answers*, 26 Population & Dev. Rev. 14 (2000) (describing the census oversight panel of the National Academy of Sciences and other scientific advisory boards).

When it comes to the potential for manipulation, the true burden of proof lies with Appellants, who must show how their interpretation of an "actual enumeration" unmoored from any requirement of accuracy would be immune to manipulation. Appellants' suggestion that imputation could be manipulated through a reduction in resources for Non-Response Follow Up or through addition or subtraction of addresses from the Master Address File, Appellants' Br. at 43 n.12, is outright bizarre: the same strategy would be even more likely and successful in an "actual enumeration" as Appellants envision it. Nothing about the headcount method prevents the Census from directing enumerators to certain locations but not others or focusing its resources on actually enumerating some agent's preferred population. Indeed, when the constitutional goals of accuracy and fair representation are subordinated to a preoccupation with headcounts, nothing prevents the Census from discarding the Master Address File altogether and just leaving it up to enumerators to roam the streets and backcountry in search of heads to count, as they did in 1790.

Even if Appellants could demonstrate some risk of manipulation from imputation, it would never be as great as other aspects of the calculation of apportionment totals that

are clearly constitutional. First, the imputation process is not nearly as manipulable or significant as the choices among various apportionment formulas and ways of dealing with remainders—a choice this Court has deemed well within Congress's constitutional authority. *See Dep't of Commerce v. Montana*, 503 U.S. 442 (1992). *See generally* Lawrence R. Ernst, U.S. Census Bureau, *Apportionment Methods for the House of Representatives and the Court Challenges* (1992), *available at* http://www.census.gov/srd/byyear/html. Second, the census totals could be manipulated by the date and length of time allotted for conducting the census, the language of the census forms,[9] the process of distribution of census forms (*i.e.*, through mail-out mailback, or through so-called coverage improvement programs in local post offices, *etc.*), and the breadth and intensity of the enumerator follow-up procedures (assuming such follow-up happens at all). Finally, Congress and the Census Bureau have broad discretion to determine whom to count toward the apportionment totals and where to count them. They can decide whether and where to count illegal aliens and decide in which state, if any, members of the military or other Americans living abroad should be counted. *Cf. Utah v. Evans*, 143 F. Supp. 2d 1290 (D. Utah) (three-judge court), *aff'd*, 122 S. Ct. 612 (2001) (rejecting argument that the census should count LDS missionaries as it counts members of the military).

The Constitution leaves these decisions and many others that could lead to manipulation of apportionment totals to the discretion of Congress in determining the manner of creating the "actual enumeration." The Census

[9] Census 2000 forms were mailed out only in English. Respondents needed to request a form in a different language. *See* U.S. Census Bureau, *Census 2000 Language Program* (Feb. 29, 2000), *available at* http://www.census.gov/dmd/www/pdf/Langpro.pdf.

Clauses accord such flexibility to Congress because the census is an enormously complex and expensive undertaking that must be completed in just a few months; it requires adaptation every 10 years as well as a series of administrative judgment calls to deal with new problems as they arise. Census 2000 was described by many as the "largest peacetime mobilization in our nation." Secretary of Commerce William M. Daley, Prepared Statement Before the Committee on Governmental Affairs, United States Senate (Mar. 11, 1997), *at* http://www.ogc.doc.gov/ogc/legreg/testimon/daley.051/censuswd.htm. Its seven-year-old operational plan had to be completely and quickly reworked to comply with this Court's decision in *House of Representatives*, and once the forms were distributed and enumerators were in the field, Bureau officials needed to make immediate decisions to counteract arising problems, such as statements by elected officials discouraging people from filling out their census forms. *See* Judith Graham, *Lawmaker Sees Big Brother in Census Form: Oklahoma Congressman Finds Many Share His Suspicions of Intrusion by the Government*, Chi. Trib., June 25, 2000, at C4 (quoting congressman critical of the census); Steven A. Holmes, *Low Response To Long Form Causes Worry About Census*, N.Y. Times, Apr. 7, 2000, at A21 (citing statements by candidates and officeholders suggesting some questions on the census could be ignored). Each one of the choices the Bureau made en route to and during the 2000 census, however, grew from its single-minded determination to achieve the most accurate count of the nation's population and hence achieve the constitutional goal of fair and equal representation.

One can easily challenge any individual judgment call or component of the operational plan. Indeed, in retrospect, Bureau officials always realize they should have done some things differently in a particular aspect of the operation. But it is the flexibility embodied in the Census

Clauses themselves that will allow the Bureau to learn from its mistakes and allow Congress and the Bureau to make each successive census more accurate than its predecessor.

The context of this case highlights an additional reason to be cautious in constraining the manner Congress may choose for conducting the "actual enumeration." The time period between the release of census data and the redistricting of congressional and other legislative seats is short and filled with political wrangling. Allowing eleventh-hour challenges based on post hoc realizations would seriously undermine the electoral processes of states that have already drawn their congressional districts based on the apportionment totals.

The effect of an adverse ruling here on North Carolina underscores the importance of the Court's traditional deference to Congress's direction of the manner in creating the enumeration and calculating apportionment totals. In short, a decision in favor of Appellants would create a logistical nightmare for the state of North Carolina. When the Court hears this case, the filing deadline will have already passed for North Carolina's May 7, 2002, primary elections in the 13 congressional districts the state assumes it will retain in the 2002 elections. If North Carolina is forced to go back to the drawing board on its congressional districts, the congressional campaign will be truncated, if it happens at all.

As this Court knows all too well, North Carolina is subject to the preclearance procedures of Section Five of the Voting Rights Act, 42 U.S.C. § 1973c § 5 (2001), and its congressional redistricting plans have spawned more Supreme Court litigation in the past decade than any other state. *See Easley v. Cromartie*, 532 U.S. 234, *reh'g denied*, 532 U.S. 1076 (2001); *Hunt v. Cromartie*, 526 U.S. 541 (1999); *Shaw v. Hunt*, 517 U.S. 899 (1996); *Shaw v. Reno*,

509 U.S. 630 (1993). A decision in favor of Appellants would likely force North Carolina to redraw its districts sometime in the early summer. Assuming the best of circumstances—that the Attorney General grants preclearance to the first plan submitted and does so with unprecedented speed—the preclearance process would allow the new districting plan to become law in the early fall. In the space of approximately two months, North Carolina would need to reopen and administer its candidate filing and qualification procedures, oversee a primary campaign and election, and oversee a general campaign and election. Such a schedule does not even make allowance for the inevitable litigation that has become as much a part of North Carolina's selection of its congressmen as the elections themselves.

CONCLUSION

"As one season follows another, the decennial census has again generated a number of reapportionment controversies." *Franklin v. Massachusetts*, 505 U.S. 788, 791 (1992). As with every other constitutional challenge ever made to the apportionment of House seats, the Court should reject Appellants' invitation to recalculate the population according to their preferred formula. The text, history, and original intent relating to the creation of the actual enumeration strongly counsel against the establishment of a new constitutional rule that straitjackets Congress in determining the manner of achieving a complete count of the population. The destabilizing political consequences that would follow a ruling in Appellants' favor here further reveal the wisdom in the Framers' model for determining the apportionment of representatives among states according to their respective numbers.

This Court should therefore affirm the opinion of the U.S. District Court for the District of Utah.

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SUPREME COURT OF THE UNITED STATES

Utah, et al.,
Appellants
v.
Donald L. Evans, Secretary of Commerce, et al.,
Appellees

On Appeal from the U.S. District Court for the District of Utah

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BRIEF OF SOUTHEASTERN LEGAL FOUNDATION, INC. AS *AMICUS CURIAE* IN SUPPORT OF APPELLANTS

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QUESTION PRESENTED

Whether statistical methods used in the 2000 Census which impute the existence of imaginary occupants in imaginary households for purposes of apportionment comply with the census clause's requirement of an "actual enumeration"?

Whether "nearest neighbor imputation," a method of statistical estimation that was part of the plan declared illegal in *Department of Commerce v. House of Representatives*, 525 U.S. 316 (1999), violates the ban on statistical sampling in 13 U.S.C. § 195?

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INTEREST OF THE AMICUS CURIAE*

Amicus Curiae, the Southeastern Legal Foundation, Inc., is a non-profit public interest organization that promotes the public interest in the proper construction and enforcement of the laws and the Constitution of the United States. The Southeastern Legal Foundation ("SLF") was established in Georgia for the purpose of participating in the public policy process and engaging in litigation in the public interest. In addition to legislative initiatives and promulgation of programs designed to inform and educate the public, the organization's attorneys represent plaintiffs in courts throughout the country to enforce laws advancing its interests through litigation.

In particular, the SLF's former president was the lead plaintiff in the case of *Clinton v. Glavin*, 525 U.S. 316 (1999), the companion case in this Court decided with *House of Representatives v. Department of Commerce*. Having prevailed in that case against the use of statistical estimation techniques in the 2000 Cenus, SLF has a vital and direct interest in prohibiting the Federal Government's attempt to circumvent that decision by using some of the exact same statistical techniques that were previously barred by this Court.

SLF has obtained permission to file this brief from all parties hereto. Their letters of consent have been filed with the Clerk pursuant to Rule 36.

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* This brief is authored in its entirety by the attorneys for SLF identified on the cover, and no person or entity other than SLF, its members or its counsel has made any monetary contribution to the preparation or submission of this brief.

SUMMARY OF ARGUMENT

The Constitution requires an "actual Enumeration" of "whole persons." U.S. Const., Art. 1, Sec. 2, cl. 3; U.S. Const. Amdt. XIV. These provisions were violated in the 2000 census when the Census Bureau, using a statistical estimation technique known as "nearest neighbor imputation," added to the apportionment headcount some 1.2 million people who were never actually enumerated or counted. Instead, they were invented so as to fill in the blanks for housing units whose occupancy status, let alone the number of occupants, was unknown even after delivery of a mail survey form and six follow up visits. Statistical methods which alter the balance of political power by conjuring imaginary people out of thin air do not comply with the requirement of actual enumeration. This actual enumeration requirement of the Constitution cannot be erased by legislative or executive fiat disguised as discretion in selecting the methods by which the census is to be taken. The actual enumeration clause is designed to protect the census from any form of manipulation, partisan or otherwise, which might arise by the application of any and all methods of estimation, including imputation in all its many varieties.

Nor can nearest neighbor imputation be squared with the statutory ban on "the statistical method known as 'sampling'" in 13 U.S.C. § 195. Sampling as used in the statute was construed in light of the census clause and the history of the census in *Department of Commerce v. House of Representatives*, 525 U.S. 316 (1999) to prohibit techniques of statistical estimation. The attempt by the appellees to limit the definition of "sampling" in the statute to "random sampling" ignores the relationship between the statute and the relevant constitutional requirements, and ignores the indisputable point that Congress knows how to say "random sampling" when it means to. Moreover, it

ignores the fact that nearest neighbor imputation was one of the methods of statistical estimation that was to be used in the census plan invalidated in *Department of Commerce v. House of Representatives*. 13 U.S.C. § 195 should be construed to avoid the absurdity of holding that Congress in the Census Act has forbidden the more reliable random sampling but allowed less reliable nonrandom statistical sampling.

ARGUMENT AND CITATION OF AUTHORITY

I. THE PROHIBITION ON SAMPLING IN 13 U.S.C. § 195 IS NOT LIMITED TO "RANDOM SAMPLING."

The statutory issue in this appeal is whether the definition of the term "sampling" as used in 13 U.S.C. § 195 includes the form of imputation used in the 2000 census.

Before the Census Bureau began trying to win this lawsuit with a narrow definition of sampling, it defined the term broadly enough to include imputation. "In our common experience, 'sampling' occurs whenever information on a portion of a population is used to infer information on the population as a whole." Census 2000 Report, AR at C00155. At this level of abstraction, imputation is certainly within the scope of the term "sampling." The Bureau itself described imputation under the heading "Reliance on Sampling in Previous Censuses." *Id.*

Now, in this litigation, the Census Bureau has changed its story on the nature of imputation. The Bureau's statutory argument goes as follows:

1. "sampling" as used in the statute means only "random sampling,"

2. the statistical method of estimation at issue in this case, imputation, is not random, and

3. therefore imputation is not prohibited by the statutory ban on sampling.

The Petersen Declaration, offered by North Carolina in proof of the contention that "sampling" means "random sampling" is unpersuasive. N.C. App. 1a-2a. Mr. Petersen was constrained to go no further than saying that "sampling" "usually" or "almost always" means "random sampling." *Id.* P7-8. Notably, he did not say "always" or "invariably." *Id.* This is because there are many ways to take a sample, and not all of them are random. Some have varying degrees of randomness, or are random only within certain subgroups, called "strata," and some are not random at all. There is a reason why statisticians use the adjective "random" to qualify the term "sampling," and that is to distinguish it from nonrandom sampling. And there is a reason why Congress, which certainly knows the difference between the two, did not qualify or limit the prohibition on sampling in § 195 to random sampling. The unstated, and false, premise of the argument is that Congress does not know how to say "random sampling" when it means to. There are eight statutes currently on the books in which Congress has used the exact phrase "random sampling," [1] and another in which it was twice used in the past but does not occur in the current version. [2] In addition, there are five current statutes which

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[1] 21 U.S.C. § 466; 21 U.S.C. § 620; 22 U.S.C § 4354; 38 U.S.C. § 3731; 42 U.S.C. § 615; 49 U.S.C. § 11501; 49 U.S.C. § 14502; PL 107-110, January 8, 2002.

[2] 42 U.S.C. § 11432

use the phrase "random sample"[3] and four others in which it was used in the past.[4] Congress has thus demonstrated on 19 separate occasions that it knows how to say "random sampling" or "random sample." In multiple other instances Congress has used the term "statistical sampling" with various modifiers such as "valid,"[5] "reliable,"[6] and "defined."[7] In this context, the inference arising from the absence of any such qualifier as "random," "valid" or "reliable" in § 195 is obvious and refutes the suggested limitation on which appellees rely.

The argument of the appellees amounts to a contention that Congress banned random sampling but left the door open for invalid and unreliable nonrandom sampling. This is absurd and rather ironic coming, as it does, from those claiming accuracy of estimation trumps all other considerations, including 200 years of contrary census history and an express Constitutional requirement of an actual enumeration. Instead, the prohibition of § 195 should be construed, as it was in *House of Representatives*, as "forbidding the use of estimation techniques in conducting the apportionment census." *House of Representatives*, 525 U.S. at 347 (Scalia, J., concurring). The argument that the prohibition on "sampling" as used in § 195 is limited "random sampling" is without merit.

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[3] 42 U.S.C. § 263b; 42 U.S.C. § 628b; 42 U.S.C. § 1315; 43 U.S.C. § 4822; PL 107-110, January 8, 2002.
[4] 26 U.S.C. § 89; 26 U.S.C. § 403; 38 U.S.C. § 1154; 42 U.S.C. § 681-687
[5] 7 U.S.C. § 1636f
[6] 42 U.S.C. § 7135
[7] 20 U.S.C. § 1078-9; 42 U.S.C. § 292f

II. IMPUTATION AS USED IN CENSUS 2000 VIOLATES 13 U.S.C. § 195.

Sampling in its essence involves both (a) acquiring data on less than the whole population and (b) using that data to draw inferences and make estimates about the whole population. Census 2000 Report, AR at C00155; Petersen Decl., N.C. App., P6 1a. There are a great many methods of accomplishing each of these tasks.

At issue in the *House of Representatives* case were two sampling programs, the Non Response Follow Up program, or "NRFU," and Integrated Coverage Management or "ICM." NRFU was intended to address that portion of the population that did not return the census questionnaire by mail. A random sample of those not responding were to be selected for follow up and actual enumeration. A sufficient number were to be selected to bring the total of those actually enumerated to 90% within a given census tract. This would vary from tract to tract because of varying rates of nonresponse.

Once 90% of the population had been actually enumerated, the Census would then use "estimation procedures" with respect to the remaining 10%. "The characteristics of the sample housing units will be used to estimate the characteristics of the housing units not in the nonresponse follow-up sample." Census 2000 Report, AR at C00161.

The particular estimation technique that the Census Bureau planned to use to estimate the characteristics of the remaining 10% of population that had not been enumerated was "nearest neighbor imputation." Robert E. Fay, Theory and Application of Nearest Neighbor Imputation in Census

2000, C01647. Nearest neighbor imputation is the method of imputation at issue in this case.

The "sampling" at issue in this case involves actual enumeration of 99.6% of the population and nearest neighbor imputation of the remaining 0.4%. The "sampling" at issue in the *House of Representatives* case involved actual enumeration of 90% of the population and nearest neighbor imputation of the remaining 10%.

The sampling at issue in *House of Representatives* was held to violate § 195 regardless of whether it was a "substitute" or a "supplement" for actual enumeration. Therefore, the difference between imputation of 10% and 0.4% is not legally significant. The technique was prohibited in *House of Representatives* and so it is prohibited here because in both instances it is sampling in violation of § 195.

It is insisted by North Carolina and by the Department of Commerce that this case is distinguishable from *House of Representatives* because the sampling in that case was random whereas there is no random sampling in this case. Apart from the argument in the preceding section, this contention is without merit because it misreads the importance of randomness to the invalidity of the NRFU program in *House of Representatives*.

The role of random selection in the Non Response Follow Up program in *House of Representatives* was limited to selection of those non-responding households that would be followed up and actually enumerated so as to raise the total of those actually enumerated to 90%. Once 90% actual enumeration had been achieved, the Bureau planned to use nearest neighbor imputation to estimate the remaining 10%.

The only point of distinction based on randomness between the method of imputation at issue in this case and

House of Representatives is that here the population from which the nearest neighbor "donor" units were selected consisted of all units actually enumerated in the non response follow up. This population was not randomly selected for such follow up. In *House of Representatives*, on the other hand, the eligible donors were limited to those enumerated as a result of their random selection for non response follow up. *Compare* Theory and Application of Nearest Neighbor Imputation, CO1651 with Federal Defendants' Responses to Interrogatories, N.C. App. 9a, 21a.

As North Carolina and the Federal government argue, the use of imputation in this case is different than estimation from a sample to a population as a whole, but these differences do not have the significance they suppose. In imputation, data for a single unknown unit is copied from a single "donor" unit. The donor unit is selected by the application of non-random criteria, usually geographic proximity. See Fay, CO1648-9. This is repeated for as many unknown units as remain in order to invent data for all of units which remain unknown after cessation of actual enumeration – 10% in the invalidated plan, 0.4% in this case. Once data for all unknown units has been fabricated in this manner, the completed data set is processed, including computation of a total population count for purposes of apportionment.[8]

Estimation for a population as a whole based on a sample, on the other hand, involves attributing to the entire population as a whole the characteristics and proportions of the randomly chosen sample as a whole. Thus, if the sample is 55% white, 30% Latino and 15% black, then the relative proportions of the whole population are taken to be the same.

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[8] This shows that imputation is neither data collection nor data processing. It is data invention.

With the imputation in this case, however, the proportions and totals were instead computed from data for the whole population, after it has been padded with imaginary people with imaginary characteristics living in imaginarily occupied units, all brought into the mix by the magic of imputation after the real people – if there were any – could not be found despite six attempts at follow up.

In nearest neighbor imputation, the donor units are selected by the non-random criteria of geographic proximity. Thus, when imputation rather than more conventional estimation is used, randomness of the donor population is not a meaningful factor. Since imputation was the technique of estimation at issue in *House of Representatives* and the technique used in this case, *House of Representatives* may not be distinguished on the illusory basis that it significantly involved random sampling whereas this case does not. Instead, both cases involve prohibited sampling in which information from less than the whole is used to make estimates about the whole population.

III. IMPUTATION AS USED IN THE 2000 CENSUS VIOLATES THE ACTUAL ENUMERATION REQUIREMENT OF THE CENSUS CLAUSE

In the *Clinton v. Glavin* case, the Southeastern Legal Foundation argued that the actual enumeration clause barred use of methods of estimation in the apportionment count. This position was supported by a thorough survey of the history of the census clause, including the policies which motivated its adoption, the contemporary understanding of the framers, including George Washington and Thomas Jefferson, and the consistent historical position of the Census Bureau prior to the Clinton Administration. The concurring

opinion of Justice Scalia in *House of Representatives*, joined by three other Justices, articulated the point this way:

> For reasons of text and tradition, fully compatible with a constitutional purpose that is entirely sensible, a strong case can be made that an apportionment census conducted with the use of "sampling techniques" is not the "actual Enumeration" that the Constitution requires.

525 U.S. at 349. The Utah parties to this case will make a similarly thorough presentation and so there is no need to further burden the record on this point.

It is sufficient to point out that Utah lost a congressional seat and a vote in the electoral college to North Carolina because, by means of imputation, the Census Bureau included in the head count some 1.2 million imaginary people it could not find even after a mail survey and six follow ups. As Utah has pointed out, there were two stages of imputation which conjured people out of thin air. Housing units whose status was unknown were imputed a status of occupied or vacant, and, for those deemed occupied, the number of occupants was imputed as well.[9] Whatever else may be said, it is incontestable that double imputation is not even close to "actual enumeration."

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[9] "The overall design was that donor units would provide characteristics, *y*, including whether the unit should be deleted, occupancy status, and for occupied units, number and demographic characteristics of the residents, owner/renter status, etc." Fay, *Theory and Application of Nearest Neighbor Imputation in Census 2000*, C01651. *See* also Federal Defendants' Responses to Interrogatories, N.C. App. 9a, 20a. ("[H]ousehold size imputation and occupancy imputation were used.")

The constitutional point is so clear that the appellees are reduced to arguing that the actual enumeration clause does not mean what it plainly says. The appellees argue instead that it means whatever Congress and a political appointee, the Secretary of Commerce, say it means. But this argument ignores the purpose of the actual enumeration clause, to protect the apportionment census from partisan manipulation. *House of Representatives*, 525 U.S. at 348-9 (Scalia, J., concurring) ("In other words, genuine enumeration may not be the most accurate way of determining population, but it may be the most accurate way of determining population with minimal possibility of partisan manipulation.") This is not a fanciful concern. In recent years the credentials of Secretaries of Commerce have been as politicians and not as statisticians.[10] And it is not exactly unheard of for a partisan majority in Congress to pass legislation for largely partisan purposes. From the founding of the republic until the Clinton Administration, the position of the federal government was that the actual enumeration clause barred statistical sampling. The unprecedented flip-flop of the Clinton Administration on this question, and the sampling-based reversal of political fortune between Utah and North Carolina in this case, shows that the framers were correct – the census does need protection.

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[10] The current Secretary, Donald L. Evans, was Chairman of the Bush/Cheney 2000 election campaign. His predecessor, Norman A. Mineta, was a member of the House of Representatives for 20 years. His predecessor, William M. Daley, of the Chicago Daleys, was a Clinton campaign official in 1992 and a Democratic National Convention official in 1996. His predecessor, Mickey Kantor, was National Chair of the Clinton/Gore campaign in 1992. His predecessor, Ronald H. Brown, was the Chairman of the Democratic National Committee.

Moreover, it cannot be denied that Congress' role in prescribing how the decennial census will be conducted is subject to constitutional limits. So much of the language of *Wisconsin v. City of New York* as implies otherwise is wide of the mark: "[T]he text of the Constitution vests Congress with virtually unlimited discretion in conducting the decennial 'actual Enumeration." 517 U.S. 1, 19 (1996). *Marbury v. Madison*, 5 U.S. 137 (1803) and innumerable cases thereafter stand for the proposition that Congress may not transgress the Constitution in the exercise of its discretion to enforce it. The constitutional requirement of an "actual Enumeration" of "the whole number of persons in each State" operates as a limit on congressional discretion. The ban in § 195 of the Census Act on statistical sampling is consistent with this limited view, and was so construed by this Court in *House of Representatives*. The purpose of the constitutional language is to forbid the use of *any* statistical estimation in apportionment count whether it is in the data collection, data processing or any subsequent stage. Neither "hot deck" imputation nor any other speculative, estimation or statistical device that can result in adding to the decennial census persons not actually counted is constitutionally allowable. The Constitution means what it says when it speaks of an actual enumeration and it refutes the idea that the census can be conducted by conjuring up phantom or virtual people who have not been identified in an actual headcount of whole persons.

The growth of the American population, the increasing sophistication of statistics as a scientific methodology or the emergence of practical problems for the Bureau of the Census and the Commerce Department in conducting the census on a limited budget do not authorize the erosion of constitutional boundaries defined in clear, unequivocal language. If the Constitution requires reform to match the demands of the times, then amendment remains an available remedy. U.S. Const. Art. V.

Under the Constitution, the census plays a crucial role in allocating representation in Congress, of primary importance to the population of affected States, and in the functioning of the Electoral College, of importance to all Americans. The census is the level playing field that assures public confidence in the essential fairness of the selection of the President. *See* generally, *Bush v. Gore*, 531 U.S. 98 (2000)

In this case, the people of Utah have experienced a substantial loss of national political power because 1.2 million imaginary people were added to the apportionment count by means of imputation. This is forbidden by the actual enumeration clause and so the judgment of the district court should be reversed.

CONCLUSION

For the foregoing reasons, 13 U.S.C. § 195 should be construed to prohibit all forms of imputation, including nearest neighbor imputation, in the decennial apportionment count. The actual enumeration clause should be construed to mean what it says. It requires an actual enumeration and prohibits inclusion in the count people who can be "counted" only by statistical methods of estimation. The judgment of the lower court should be reversed, and the apportionment count should be declared to be that obtained in compliance with the Census Act and the actual enumeration clause.

Respectfully submitted,

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